THE BEAUFORT SEA, MACKENZIE DELTA, MACKENZIE VALLEY, AND NORTHERN YUKON: A BIBLIOGRAPHICAL REVIEW

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Information System

THE BEAUFORT SEA, MACKENZIE DELTA, MACKENZIE VALLEY, AND NORTHERN YUKON: A BIBLIOGRAPHICAL REVIEW

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C. Ross Goodwin
Lynda M. Howard

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ACKNOWLEDGEMENTS

This bibliography was prepared under a contract from the Office of the Northern Research and Science Advisor, DIAND. The editors wish to thank Raymond Bergeron, Northern Science Coordinator, for his advice and support.

INTRODUCTION

Scope of the Bibliography

This bibliography contains 1547 citations, with abstracts, concerning the Canadian Beaufort Sea region and the Mackenzie Valley.

The bibliography is completely multi-disciplinary, and includes the entire range of subjects contained in the ASTIS database.

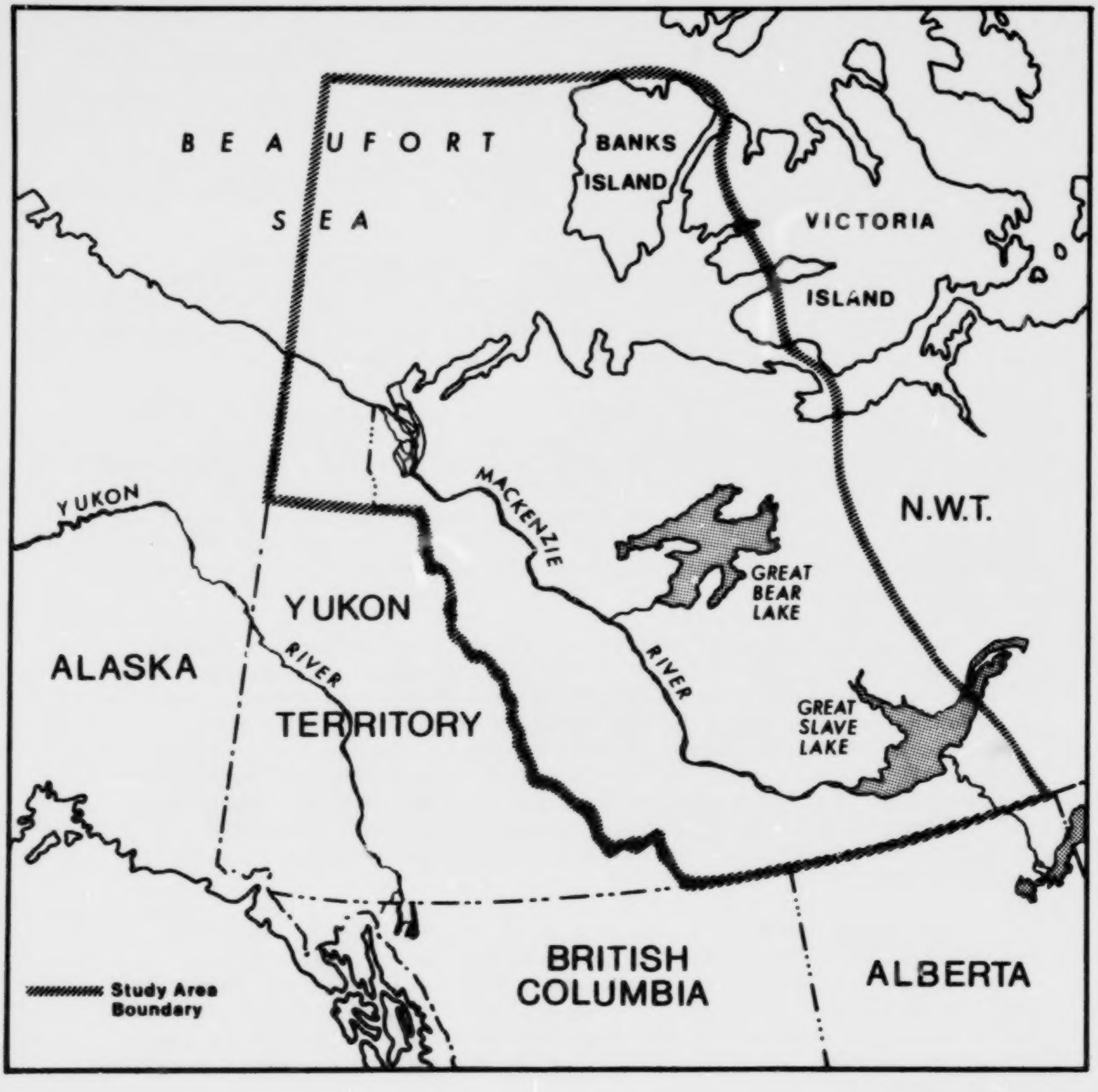
The map on the following page shows the geographic limits of the bibliography. The bibliography covers the Canadian sector of the Beaufort Sea, Amundsen Gulf, Banks Island, western Victoria Island, the entire western half of the District of Mackenzie, and the Yukon north of 67 degrees. Information on the Yukon portion of the Dempster corridor has also been included, even though it falls outside the area shown on the map, because of its importance as a transportation route to the Mackenzie Delta.

Documents concerning part or all of the area defined on the map, have, of course, been included in the bibliography. In addition, some documents concerning areas larger than that defined on the map, such as the Northwest Territories or the Canadian Arctic, have also been included in the bibliography if they appear to contain a significant amount of information on the Beaufort-Mackenzie region. Generally, "significant" was considered to be fifty percent or more. There are many documents containing smaller amounts of information on the Beaufort-Mackenzie region which have not been included in the bibliography.

This bibliography was prepared using information in the ASTIS database as of August 1984. It is therefore not a comprehensive bibliography since, generally speaking, ASTIS only contains documents published since the mid-1970's. Hopefully at some future time it will be possible to update this bibliography by adding any documents that have been missed, some selected older documents, and documents published after August 1984.

Organization of the Bibliography

This bibliography has been produced directly from the ASTIS online database. The main section of the bibliography is sorted by ASTIS broad subject categories as shown in the Table of Contents. Documents which apply to more than one broad subject category are listed in the most applicable category, and are cross-referenced in the "See Also" list which appears at the end of other pertinent categories. Within each category documents are sorted by their ASTIS document number.


BEAUFORT SEA
BANKS ISLAND
VICTORIA ISLAND
N.W.T.
YUKON
MACKENZIE RIVER
GREAT BEAR LAKE
YUKON TERRITORY
YUKON RIVER
ALASKA
GREAT SLAVE LAKE
BRITISH COLUMBIA
ALBERTA
Study Area Boundary

GEOGRAPHIC LIMITS OF THIS BIBLIOGRAPHY

The Subject, Geographic, and Author Indexes refer back to the main section of the bibliography using a combination of category code and document number. Terms in the Subject and Geographic Indexes are taken from the ASTIS Thesauri. All personal and corporate authors of a document are listed in the Author Index.

Availability of Documents

The last line of most citations (i.e. the last line preceding the abstract) contains a location code indicating where the document may be obtained on interlibrary loan. The standard Canadian interlibrary loan codes are used. A very high percentage of the documents have location code ACU, which indicates that they are available from:

Interlibrary Loans Office
Room 218, Library Tower
University of Calgary
Calgary, Alberta T2N 1N4

Please give the ASTIS document number as well as the full citation when ordering from this source.

A - GEOGRAPHY, GEOMORPHOLOGY, AND CARTOGRAPHY

A-12106
Limits of ice advance, glacial lakes, and marine transgressions on Banks Island, District of Franklin : a preliminary interpretation / Vincent, J.-S.
(Paper - Canada. Geological Survey, 78- 1C, p. 53-62, ill., maps)
References.
ACU

Three glaciations with associated marine and glaciolacustrine phases on Banks Island are recognized for the first time. The oldest (Banks Glaciation) affected all but the northwest part of the island; glacial lakes Egina and Storkerson were formed during deglaciation. Ice of the Thomsen Glaciation of pre-Sangamonian age covered the south and east and flowed down Thomsen River valley. ... The youngest, or Amundsen Glaciation, of probable Early or Middle Wisconsinan age involved two icelobes that impinged on the east and southwest coasts creating glacial lakes Raddi, Masik, Rufus, De Salis, Cardwell, and Sarfarssuk at their limit. ... (Au)

A-12840
Remote sensing data summary : Mackenzie Delta - Beaufort Sea - Herschel Island - Sachs Harbour / Aird, W.J. Pierce, S.P.
Ottawa : Environmental Conservation Directorate, Environmental Protection Service, Environment Canada, 1976.
[73]p. : maps, figures ; 28cm.
(Economic and technical review report - Canada. EPS. Environmental Conservation Directorate, EPS-3-EC-76- 3)
ACU

This report documents the remote sensing data up to 1975 available at the National Air Photo Library (NAPL) covering the Mackenzie Delta - Beaufort Sea -- Herschel Island - Sachs Harbour. Guidance is provided on how the original data may be retrieved and an example of the data retrieval procedure is given. ... (Au)

A-19518
Protection of permafrost and ice-rich shores, Tuktoyaktuk, N.W.T., Canada / Shah, V.K.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- , v.1, p. 870-876, figures)
References.
ACU

DPW undertook ... to study the shore erosion occuring at Tuktoyaktuk and to develop solutions to arrest further degradation of the shore. The program included literature research; review of available data; consultations; field measurements and investigations; and research on alternative solutions. The investigations revealed that in the arctics where ice rich soils and massive ice abound within the soil mass, thawing of permafrost and ice caused by the summer temperatures and the summer sea conditions is a principal and additional cause of shore erosion to those usually encountered in the southern regions. ... (Au)

A-30031
Coastal sedimentary processes and sediments, southern Beaufort Sea / Lewis, C.P. Forbes, D.L.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
68p. : ill., maps, photos. ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 24)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 24)
Appendix: Physical aspects of the Beaufort Sea coast. Prepared testimony presented to the Mackenzie Valley Pipeline Inquiry, February 13, 1976.
Bibliography: p.39-40.
ACU, NFSMO

This technical report is based primarily on fieldwork conducted during the summer of 1974 into the geometry, composition, origin and stability of coastal landforms bordering the Beaufort Sea from the Alaska-Yukon boundary east to the Mackenzie Delta. The 1974 study followed general reconnaissance investigations of the northwest coast of the Tuktoyaktuk Peninsula in 1973 and of the Yukon coast in 1972 .... As well, prepared testimony by the senior author, presented to the Mackenzie Valley Pipeline Inquiry on February 13, 1976, is included in this report as an appendix. The reader is referred to this appendix for a more general overview of physical aspects of the Beaufort Sea coast, discussion of the implications of offshore hydrocarbon resource development on the coastal zone, and for additional detailed information on the modern Mackenzie delta plain. (Au)

A-31879
Cliff collapse and rock avalanches (sturzstroms) in the Mackenzie Mountains, northwestern Canada / Eisbacher, G.H.
(Canadian geotechnical journal, v. 16, no. 2, May 1979, p. 309-334, ill., maps, photos.)
References
ACU

... Some of the rock slides are close to a Holocene fault scarp and may be due to past earthquake activity. ... At several localities at least two generations of slide material can be recognized. All major sturzstroms originated by failure above inclined bedding plane surfaces, ranging in dip from 13-40 deg. ... Prediction of reach or excessive travel distance of dry sturzstroms is not a simple matter and one has to consider the effect of slide mass, fall height, topographic constraints, and lithology. The best method of predicting reach in a potential sturzstrom situation is comparison with documented surzstroms in similar geologic, climatic, and topographic settings. (Au)

A-33537
Dendrogeomorphological analysis of flooding and mass movement, Ram Plateau, Mackenzie Mountains, Northwest Territories / Butler, D.R.
(Canadian geographer, v. 23, no. 1, Spring 1979, p. 62-65, ill., photos.)
References.
ACU

Field work was conducted in 1977 on the Ram Plateau, located along the eastern front of the Mackenzie Mountains, Northwest Territories, approximately 160 km west of Fort Simpson. ... The purposes of this study, then, were threefold: (1) to determine the recent flood history of Ram River and its tributaries; (2) to study the periods of movement of slumps and debris avalanches along the tributary streams; and (3) to establish any relationships, particularly temporal, between flooding and mass-wasting. These objectives were accomplished through tree-ring analysis of trees affected by flooding and mass movement. ... (Au)

A-59439
The northern Yukon : a land the glaciers missed /
Ironside, G.R. Wiken, E.B. Taylor, D.G.
Welch, D.M.
(North/Nord, v. 27, no. 2, Summer 1980, p.
38-43, col. ill.)
ACU

... The northern Yukon's most interesting contrast ... is between its unglaciated areas - a major portion of the three percent of Canada which remained free of ice in the last Ice Age - and those which have been glaciated. The unglaciated landscapes of this area in fact differ so greatly from all the rest of Canada, (except for adjacent areas farther south in the Yukon Territory) that many landforms are found nowhere else in the country .... The unglaciated terrain has also enabled the preservation of remnants of Canada's biological and historical past; sediments of the northern Yukon have, in recent years, revealed many of the oldest and most significant archaeological and paleontological sites in all of North America. ... (Au)

A-60194
Movement of an ice-cored rock glacier, Tungsten,
N.W.T., Canada, 1963-1980 / Jackson, L.E.
MacDonald, G.M.
(Arctic, v. 33, no. 4, Dec. 1980, p. 842-847,
figures)
References.
ACU, NFSMO

In August 1963 Dr. H. Gabrielse, of the Geological Survey of Canada, established five lines of marked boulders on what is now believed to be a large ice-cored rock glacier near Tungsten, Northwest Territories. The boulders were aligned with survey targets located on the rock walls of the valley in which the rock glacier is located. The distances from the snout of the rock glacier to eight forest trees along its perimeter were measured and blazed into the trees. In July 1980, we visited the rock glacier and resurveyed the marked boulders and the rock glacier's snout in order to establish the rate and nature of movement of the rock glacier over the past 17 years. (Au)

A-64807
Aspects of the deglaciation of the Coppermine
River region, District of Mackenzie / St.-Onge,
D.A. Geurts, M.A. Guay, F. Dewez, V.
Landriault, F. Leveille, P.
(Paper - Canada. Geological Survey, 81- 1A, p.
327-331, figures, map)
Text in English and French.
References.
ACU

In late glacial time the disintegration of the Laurentide Ice Sheet resulted in the deposition of erratics, moraines, and various ice-contact sediments in the Hepburn Lake map area. During ice retreat, Coppermine River valley south of the mouth of Kendall River became ice free and was occupied by a high-level (370 m a.s.l.) glacial lake which drained through Kamut Lake channel and Sloan River valley into Great Bear Lake. As a result of further ice retreat, the glacial lake expanded into the valley of Simal Lakes. This lower phase of glacial Lake Coppermine (approximately 310 m a.s.l.) drained westward through Dismal Lakes and Dease River valleys to Great Bear Lake. Preliminary palynological studies of a 4 m-thick sequence of organic-rich sediments show important vegetation changes between 8400 and 3200 years ago. (Au)

A-66460
L'ile de Banks : un paradis pour l'etude des
glaciations quaternaires [Banks Island : an
ideal location for the study of Quaternary
glaciation] / Vincent, J.-S.
(Geos, v. 10, no. 1, Winter 1981, p. 18-21)
English abstract.
Text in French.
ACU, NFSMO

Banks Island ... is a polar desert where a long sequence of Quaternary events are recorded in the sediments. Laurentide ice sheets, spreading from dispersal centres to the southeast, reached their maximum extent on Banks Island on at least three occasions. The story of the three glaciations and of the intervening interglacial periods is summarized. (Au)

A-73741
Periglacial slopewash investigations, Banks
Island, western Arctic / French, H.M.
Lewkowicz, A.G.
(Biuletyn peryglacjalny, no. 28, 1981, p.
33-45, ill., figures, plates, tables)
References
ACU

Three small run-off plots, located in north-central Banks Island, were used in a reconnaissance study of the hydrologic and geomorphic importance of downslope water movement during the summer of 1977. Positive correlations were observed between net radiation, sensible heat transfer, and run-off production. In addition, summer precipitation generated surface flow with low run-off coefficients. Suspended and dissolved sediment concentrations in surface run-off were low suggesting that slopewash is not a major denudational process in this environment. Some support is given to the concept of partial area contribution to run-off in permafrost regions. (Au)

A-74446
Late Quaternary sea levels in the southern
Beaufort Sea / Forbes, D.L.
(Paper - Canada. Geological Survey, 80- 1B, p.
75-87, figures, tables)
References.
ACU

Data on late Quaternary sea levels in the Beaufort Sea are extremely limited, yet the sea level chronology in this area is of some importance for studies of continental ice loading, submarine permafrost and ice scour, and deltaic sedimentation. The evidence suggests that deviations from published eustatic curves have occurred in the region, and indeed the concept of local correspondence with a worldwide eustatic pattern appears to be outmoded. A hypothetical history for the Mackenzie Delta is proposed which includes limited isostatic depression due to late Wisconsin ice, minor uplift, and renewed subsidence due to forebulge collapse or sediment loading. A mid-Wisconsin transgression of the order of 10 m higher than present sea level is suggested by evidence in the Mackenzie Delta area and in north Alaska, but no evidence for sea levels higher than present since the late Wisconsin has been found west of Cape Bathurst. Coastal morphology, radiocarbon and archeological dates, and plausible mechanisms suggest a recent and perhaps continuing regional submergence. The tidal record at Tuktoyaktuk is insufficient to resolve the contemporary trend of sea level. (Au)

A-81175
Morphology, hydrology and hydrochemistry of karst in permafrost terrain near Great Bear Lake, Northwest Territories / van Everdingen, R.O.
Ottawa : National Hydrology Research Institute, Inland Waters Directorate, 1981.
ix, 53p. : figures, maps (fold. in pocket), photos., tables ; 28cm.
(NHRI paper, no. 11)
(Scientific series - Canada. Inland Waters Directorate, no. 114)
References.
ACU

Collapse karst is widespread in the Franklin Mountains, Colville Hills and Great Bear Plain between Great Bear River and 67 degrees N. ... Integrated surface drainage is limited or lacking over portions of the karst area. Hydrologic measurements ... indicate that subsurface runoff may be as high as 40 mm per year or about 15% of the annual precipitation and that rainfall rates as low as 6 mm per day can initiate recharge to the karst-water system. ... Seasonal flooding of karst depressions may cause problems for future engineering developments in the region .... The karst-water system is extremely vulnerable to contamination from the surface because of the close spacing of high-rate recharge points and the unfiltered nature of the recharge. Once a contaminant has entered the karst-water system, rapid subsurface transport will make containment, recovery and cleanup after an accidental spill difficult or impossible. (Au)

A-90042
Terrain and vegetation along the Victoria Island portion of a Polar Gas combined pipeline system / Western Ecological Services Ltd. Peterson, E.B. Kabzems, R.D. Levson, V.M. Polar Gas Limited [Sponsor].
[Toronto : Polar Gas], 1981.
1 v. (various pagings), [7] p. of plates : ill., figures, tables ; 28 cm.
(Environmental program - Polar Gas Limited)
Appendices.
References.
ACU, OON

The general objective of this study was to describe vegetation and terrain along a proposed Polar Gas pipeline route .... Only the main pipeline route was investigated .... The more specific objectives of the 1980 work were to: i) describe and photograph the major repetitive vegetation types along the proposed route; ii) group the observed types into at least two levels of classification .... iii) describe relationships between vegetation type boundaries and landforms, surficial materials, topographic position on slopes, streams, ponds, drainage patterns, and late summer snow banks; iv) record information on degree of cover by vegetation, vegetation height, species composition of vegetation types, depth of soil organic matter and active layer depth of each site sampled; v) describe and photograph the main landform types and surficial materials along the proposed route; vi) describe and photograph conspicuous surface expressions of unstable terrain; vii) document any rare or unusual vegetation or terrain features along the proposed route. This report outlines methods used during the study, the main terrain features in terms of physiography, terrain types and surficial materials, the main vegetation types present along the route, examples of topographic sequences of vegetation types, and some of the main terrain and vegetation highlights observed near the proposed route. ... (Au)

A-98655
"Whale Island" and the Mackenzie Delta : charted errors and unmapped discoveries, 1789 to 1850 / Bredin, T.F.
(Arctic, v. 15, no. 1, Mar. 1962, p. 51-65, ill., figures)
ACU

A-103152
Landscape mapping in the Mackenzie River valley / Crampton, C.B.
(Arctic, v. 28, no. 4, Dec. 1975, p. 284-294, ill., figures, table)
ACU

A-103683
The use of satellite imagery for monitoring ice break-up along the Mackenzie River, N.W.T. / Dey, B. Moore, H. Gregory, A.F.
(Arctic, v. 30, no. 4, Dec. 1977, p. 234-242, ill., figures, table)
ACU, NFSMO

A-107999
Northwest Passage coastal videotape manual / Woodward-Clyde Consultants. Dome Petroleum Limited [Sponsor].
Rev. ed., March 1982.
Victoria, B.C. : Woodward-Clyde Consultants, 1980.
2 microfiches : maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC14)
Rev. ed. of: Northwest Passage videotape manual, Dec. 1980.
ACU

This videotape survey of the coasts of the Northwest Passage, between Amundsen Gulf and Lancaster Sound through Viscount Melville Sound, was undertaken ... to provide a complete and continuous coverage of the shore zone for use in spill training, contingency planning and countermeasure operations. ... The tapes were edited to remove poor footage and to provide a set of tapes that are in a logical sequence. ... The audio commentary that has been provided for the edited tapes describes the physical shoreline character and appropriate cleanup countermeasures or strategies for each section of coast. (Au)

A-108006
Amundsen Gulf videotape manual / Woodward-Clyde Consultants. Dome Petroleum Limited [Sponsor].
Victoria, B.C. : Woodward-Clyde Consultants, 1982.
2 microfiches : maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC15)
ACU

This videotape survey of the coasts of Amundsen Gulf and Dolphin and Union Strait was undertaken for Dome Petroleum Ltd. to provide a complete and continuous coverage of the shore zone for use in spill training, contingency planning and countermeasure operations. The survey was carried out in September 1981 using a high-wing twin-engine aircraft .... The audio commentary that has been provided for the edited tapes describes the physical shoreline character and appropriate cleanup countermeasures or strategies for each section of coast. The edited tapes, therefore, contain relevant information to supplement the visual shore-zone coverage and to provide a comprehensive description of individual sections of coast. (Au)

A-108014
Beaufort Sea coast videotape manual /
Woodward-Clyde Consultants. Dome Petroleum Limited [Sponsor].
Victoria, B.C. : Woodward-Clyde Consultants, 1980.
1 microfiche : maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC16)
ACU

This videotape survey of the coasts of the Beaufort Sea, between Demarcation Point and the Baillie Islands, was undertaken for Dome Petroleum Ltd. to provide a complete and continuous coverage of the shore zone for use in spills training, contingency planning and countermeasure operations. The original survey was carried out in August 1980, using a high-wing single-engine aircraft. A second survey was undertaken in September 1981 to provide additional coverage, using a high-wing twin-engine aircraft. ... The audio commentary that has been provided for the edited tapes describes the physical shoreline character and appropriate cleanup countermeasures or strategies for each section of coast. The edited tapes therefore contain relevant information to supplement the visual shore-zone coverage and to provide a comprehensive description of individual sections of coast. (Au)

A-108146
Environmental evaluation for a marine base at McKinley Bay, Northwest Territories / Dome Petroleum Limited.
[Calgary, Alta.] : Dome Petroleum Ltd., 1979.
5 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE22)
Appendix.
References
ACU

Impacts of the dredging program upon marine and terrestrial mammals and birds are expected to be limited to possible avoidance reactions in some instances, and to some species. With respect to harbour activities and the overwintering of the drilling fleet, the possibility of an oil spill during fuel transfer or due to a shipping accident appears to offer the greatest concern. In this regard, an oil spill contingency plan has been developed to ensure adequate response and protection of the environment, should such an incident occur. On the basis of the information contained in this report, it is our conclusion that the proposed project can proceed as currently envisaged without causing lasting, significant undesirable impacts upon the environment of the area. ... This report serves to describe the projected overwintering harbour and all activities associated with the construction and early operations of the proposed facility. It also provides the most detailed description of the existing environmental features of McKinley Bay and the surrounding area that is possible with existing information, and examines all of the potential environmental implications of the overwintering facility and associated activities. ... (Au)

A-113859
Les formes d'effondrement et le mode de deglaciation de la region du Lac Qingaluk, Territories-du-Nord-Ouest, Canada = Collapse landforms and deglaciation process in the Lake Qingaluk region, N.W.T., Canada / St.-Onge, D.A. Geurts, M.-A.
(Geographie physique et Quaternaire, v. 36, no. 1-2, 1982, p. 233-240, figures (1 folded in pocket))
Special issue prepared for the 11th Congress of the International Union for Quaternary Research (INQUA), Moscow, 1982.
References.
English summary.
Text in French.
ACU

... Glacial and glaciofluvial sediments and associated landforms in the Qingaluk River valley illustrate the complexity of glacial retreat in the Coppermine River Valley region, N.W.T. In this area of moderate relief (300 m), minor retreat (2-5 km) of the ice front led to dramatic changes in melt-water flow patterns and in sedimentary environments within the valley. Near the ice-front, dead-ice blocks were buried by rapid deposition of coarse sediments from meltwater streams. Subsequent melting of these buried ice masses, after meltwater activity had ceased, created typical collapse landforms. These, along with moraine ridges, can be used to define the former ice margins. Four such positions have been recognized in the Qingaluk Lake region. The last of these held up a high-level Glacial Lake Coppermine (Kamut Phase). The sequence of deglaciation explains the reversals in river flow direction, the inverted relief in outwash, and the terracing along the outlet of the Kamut Phase of Glacial Lake Coppermine. (Au)

A-115878
Les lacs glaciaires de l'Ile de Banks, arctique canadien = The glacial lakes of Banks Island, Canadian Arctic / Vincent, J.-S.
(Geographie physique et Quaternaire, v. 37, no. 1, 1983, p. 39-48, figures)
References.
English abstract
Text in French.
ACU

... [Twelve glacial lakes] are associated with one or the other of three continental glaciers that reached their outer limits on the island during the Quaternary. The lakes were either dammed in nonglaciated areas at the margin of the ice sheet or covered newly deglaciated terrains. ... On the basis of their location and that of their outlets, glacial lakes have provided information on the pattern and direction of ice retreat. Based on the relationship between the various glacial lobes and lakes associated with the M'Clure Stade, the Thesiger, Price of Wales and Prince Alfred lobes are of the same age. (Au)

A-123404
Alluvial history of the Porcupine River, Alaska : Role of glacial-lake overflow from northwest Canada / Thorson, R.M. Dixon, E.J.
(Bulletin - Geological Society of America, v. 94, no. 5, May 1983, p. 576-589, figures, tables)
References.
ACU

The stratigraphy and morphology of alluvial terraces in the lower Porcupine Valley permit the definition of twelve river stages, each marked by distinctive surface characteristics, sediment composition, and regional gradient. Terraces that exhibit characteristics suggestive of extremely high discharge ... formed at times when the Porcupine River at the Ramparts acted as an overflow outlet for glacial lakes in northern Yukon Territory which had been impounded by the Laurentide ice sheet. Terraces capped by sediment suggestive of relatively low discharge meandering streams, and which were strongly affected by Coleen River drainage, probably formed when glacial-lake overflow did not occur. Ten radiocarbon dates on alluvial sediments from the lower Porcupine River range from greater than 35,000 to 2,350 +- 55 yr B.P. When combined with geomorphologic interpretations on terraces in Alaska and with radiocarbon dates from northern Yukon Territory, these dates suggest repeated glaciolacustrine innundations of the Old Crow and Bluefish Basins during Wisconsinan time. (Au)

A-136280

Hydrographic requirements for arctic shipping : marine transportation operations / O'Shea, J.
(Proceedings : Northern Transportation Conference : the challenge of the eighties, Whitehorse, Yukon, October 5-7, 1982. - [Ottawa : Transport Canada, 1983?], p. 169-170)
References.
ACU

The author delivered some background information on the state of hydrography in the Arctic by outlining the Canadian Hydrographic Service's Arctic priorities and mentioned some of the methods by which they hope to accomplish their objectives. (ASTIS)

A-136999

High rates of bedload transport measured from infilling rate of large strudel-scour craters in the Beaufort Sea, Alaska / Reimnitz, E. Kempema, E.W.
Menlo Park, Calif. : Geological Survey, 1982.
18 p. : figures ; 28 cm.
(Open-file report - U.S. Geological Survey, 82-588)
References.
NFSMO

Strudel scours are craters as much as 20 m wide and 4 m deep, that are excavated by vertical drainage flow during the yearly spring flooding of vast reaches of fast ice surrounding arctic deltas; they form at a rate of about 2.5/square km/yr. Monitoring two such craters in the Beaufort Sea, we found that in relatively unprotected sites they fill in by deposition from bedload in 2 to 3 years. ... Over a 20-m-wide sector, an exposed strudel scour trapped 360 cubic m of bedload during two seasons; this infilling represents a bedload transport rate of 9 cubic m/yr/m. This rate should be applicable to a 4.5-km-wide zone with equal exposure and similar or shallower depth. Within this zone, the transport rate is 40,500 cubic m/yr, similar to estimated longshore transport rates on local barrier beaches. On the basis of the established rate of cut and fill, all the delta-front deposits should consist of strudel-scour fill. Vibracores typically show dipping interbedded sand and lenses of organic material draped over very steep erosional contacts, and an absence of horizontal continuity of strata--criteria that should uniquely identify high-latitude deltaic deposits. Given a 2- to 3-year lifespan, most strudel scours seen in surveys must be old. The same holds true for ice gouges and other depressions not adjusted to summer waves and currents, although these features record events of only the past few years. In view of such high rates of bottom reworking of the shallow shelf, any human activities creating turbidity, such as dredging, would have little effect on the environment. However, huge amounts of transitory material trapped by long causeways planned for offshore development would result in major changes in the environment. (Au)

A-137375

Hydrographic surveys in the Beaufort Sea / Bolton, M.
(Proceedings : colloquium III : petroleum mapping & surveys in the 80s, The Banff Centre, Banff, Alberta, Canada, October 14-16, 1981. - Calgary, Alta. : Canadian Petroleum Association, [1981], p. 253-261, figures)
References.
NFSMO

Major resource exploration activity is being conducted in the Beaufort Sea. This activity, plus the anticipated follow-up exploitation phases, has created a high priority requirement for accurate hydrographic surveys and charts of the area. Because of unique geomorphological characteristics of the ocean floor, an extensive review of existing depth measurement instrumentation and techniques has been undertaken. New systems and procedures are evolving, in an effort to achieve total bottom coverage of 'corridors' within the Beaufort Sea. This paper describes systems, procedures and survey results to date. (Au)

A-138932

Late Wisconsinan glaciation and deglaciation of Wollaston Peninsula, Victoria Island, Northwest Territories / Sharpe, D.R.
(Paper - Canada. Geological Survey, 84- 1A, p. 259-269, figures)
References.
ACU

Detailed study of glacial landforms has allowed a sequence of ice retreat maps to be produced for Wollaston Peninsula showing frontal and/or areal stagnation of full ice cover. Frontal retreat consists of a sequence of end moraine fragments and ice marginal outwash terraces and fans that can be traced across central Wollaston Peninsula. These features indicate that free drainage occurred to the west coast during this frontal retreat. Little evidence exists for damming of glacial meltwater. Areal stagnation produced large tracts of hummocky moraine when active ice became detached from extensive thin, cold-based, upland ice. ... The glacial landforms are arranged as a regular sequence representing an energy profile across a former ice stream. This arrangement of landforms supports the concept of complete ice cover for Wollaston Peninsula as do landform arrangements on the adjacent landmass south of Dolphin and Union Strait (Melville Hills). The till deposited by this latest glacial advance can be traced continuously across the upland on Wollaston Peninsula. Stratigraphic sections show only one transgressive regressive marine sequence that relates to this glacial advance. The 300 m end moraine ice limit previously proposed for Wollaston Peninsula represents an ice position ending in the sea well short of the full glacier cover. If this moraine represents the Late Wisconsinan limit, a second marine limit should be evident - a prediction that is not borne out by field studies. (Au)

A-139041

Sediment sampling of beaches along the Mackenzie Delta and Tuktoyaktuk Peninsula, Beaufort Sea / Lawrence, M. Pelletier, B.R. Lacho, G.
(Paper - Canada. Geological Survey, 84- 1A, p. 633-640, figures, tables)
References.
ACU

Sixteen representative beaches along the southeastern Beaufort Sea are described and illustrated from the standpoint of morphology, erosion, and sediment transport. This is part of a larger fisheries research program (Department of Fisheries and the Oceans) which is designed to gain information on the sensitivity of these beaches to erosion and oil contamination. Detailed textural analysis on 46 beach samples reveals the undercutting action of waves on shore cliffs that are undergoing thermal degradation and slumping. Fine sediment is removed by the waves and transported easterly by oceanic longshore currents towards Amundsen Gulf or to local sediment sinks lying east or west of the beach source. A strong beach armour of coarse pebbles, cobbles, and a few boulders characterizes most beaches on the mainland. Beaches on the barrier islands are mainly sand. Removal of beach armour should be prevented, and finer granular material should be removed with utmost precaution, particularly in those areas where replenishment is slow or perhaps where the loss cannot be replaced by wave action or longshore currents. (Au)

See Also : B-16195, B-38873, B-52582, B-67334, B-85332, B-113840, B-113867, B-120251, B-139807, C-57509, C-102814, C-122548, C-123862, C-126950, F-37850, F-121622, F-121630, G-65226, G-85227, H-112941, I-123242, I-135631, J-105899, Q-69264, Q-114650, Q-116157, Q-118206, Q-124192, Q-132535, R-89273, W-138177

B - GEOLOGY, MINERALOGY, GEOCHEMISTRY, AND PALAEONTOLOGY

B-566
Fifteen stratigraphic sections from the lower Cambrian of the Mackenzie Mountains, northwestern Canada / Fritz, W.H.
[Ottawa] : Geological Survey, [c1978]
1 portfolio : ill., maps (fold.), plates, microfiches (in pocket) ; 28cm.
(Paper - Canada. Geological Survey, 77- 33)
ISBN 0-660-01519-6
References.
ACU

This paper describes 333 lithologic units, 304 fossil facilities, and locates 1571 geochemical samples. This is the second of three papers describing Lower Cambrian strata in the Mackenzie Mts. Most of the strata are located in the middle carbonate belt, a belt flanked on the northeast by an inner detrital belt and on the southwest by an outer detrital belt. Two grand cycles (clastic-carbonate pairs) recognized earlier in the strata are divided into half-cycles and traced laterally into the present sections. Data from these sections, plus that from 10 previously described sections, are combined and interpreted in a facies distribution fence diagram. (Au)

B-3735
Geological interpretation of an airborne gamma-ray spectrometer survey of the Hearne Lake area, Northwest Territories / Newton, A.R. Slaney, V.R.
[Ottawa] : Geological Survey, [c1978].
1 portfolio : tables, maps (part. fold. in pocket) ; 28cm.
(Paper - Canada. Geological Survey, 77- 32)
ISBN 0-660-01530-7
References.
ACU

Airborne gamma radiation surveys are not easily correlated with published geological maps particularly in the swampy, lake-ridden, glaciated terrain of the western Canadian Shield. This study shows how large volumes of airborne data can be displayed in a simple format which provides both mapping and exploration geologists with information not easily obtained from the original data. Eleven lines or part-lines from a gamma-ray survey of the Hearne Lake area were chosen as test lines, and airphotos were used to identify outcrops of each rock type and the distribution of overburden, swamp and water along each line. Geological maps were used to locate the test lines and to provide a listing of the rock types in the area. With this information, it was possible to calculate the average radioelement characteristics of each rock type and to group the rock signatures into a number of rock classes. ... Zones of anomalously high radioactivity often cross lithological boundaries and may be considered useful indicators for uranium exploration. ... (Au)

B-4510
Geophysical evaluation of granular material resources, Tuktoyaktuk Harbour, Northwest Territories / Hardy (R.M.) and Associates Limited. Canada. DIAND.
Calgary : R.M. Hardy and Associates Ltd., 1978
ill, 49 leaves : maps (part. fold.) ; 29cm.
Prepared for Dept. of Indian Affairs and Northern Development.
ACU

This report outlines the results of a geophysical survey of Tuktoyaktuk Harbour, N.W.T., as requested by the Department of Indian Affairs and Northern Development (DIAND), and represents the second phase of a granular materials inventory conducted for the Tuktoyaktuk area. The first phase of the study encompassed an area within a 48 km (30 mile) radius of Tuktoyaktuk, and included an investigation of granular deposits on land, near shore and offshore. The geophysical survey provided bathymetric data, and subbottom profiles of near surface stratigraphy representing lower and higher density materials. Maps of bathymetric contours and of low density material isopachs were prepared from the geophysical survey data. Based on a geologic assessment of the study area, it is assumed that the low density materials are silts and clays, while the higher density materials are sands and gravels. (Au)

B-4693
Structures induced by granite diapirs in the Archaean greenstone belt at Yellowknife, Canada : implications for Archaean geotectonics / Drury, S.A.
[Edmonton, Alberta] : Boreal Institute for Northern Studies, [1977].
[14]p. : maps ; 24cm.
(Contribution - Alberta. University. Boreal Institute for Northern Studies, no. 48)
(Journal of geology, v. 85, no. 3, May 1977, p. 345-358)
References.
ACU

A sequence of major and intermediate scale folding episodes within a crustal superstructure of Archaean volcanics and sediments is related to various phases of rise and lateral expansion of large diapiric granitic plutons. As well as producing folds in the superstructure the evolution of these granitic masses imposed structural modifications upon one another. The movement of granitic diapirs occurred after the granites had crystallized. The dominant tectonic influence over the complex structural patterns of greenstones in the Slave Province is therefore suggested to have been vertical movements associated with granitic plutonism, rather than lateral forces. However, the dominant vertical tectonics of such Archaean greenstone/granite terrains may be related to much larger scale lateral deformation of relatively thin Archaean continental lithosphere. (Au)

B-6777
Granular materials assessment, Pine Point Highway, Hay River, N.W.T. : an assessment of aggregate deposits at miles 12 and 17 south, Pine Point Highway, Hay River area, Northwest Territories / Bird and Hale Limited. Canada. DIAND.
Toronto : Bird and Hale Ltd., [1978].
208 leaves : ill., tables, maps ; 28cm.
Cover title.
Prepared for the Dept. of Indian Affairs and Northern Development.
ACU

Nine potential granular deposits located two to four miles south of N.W.T. Highway No. 5 between miles 11 and 17, from the junction of Highway No. 2 and Highway No. 5, were investigated. This investigation involved the excavation of 67 test pits using a track-mounted 3/4 cubic yard backhoe. All field investigation was conducted during the winter months to avoid the severe access difficulties imposed by the surrounding muskeg conditions. However, the existence of heavy frost in a surficial strata of bouldery granular material prevented excavation of some test pits, particularly in the Mile 17 south deposits. This hindered accurate determination of aggregate quality and quantity in some areas. Preliminary laboratory analyses was conducted on all of the granular samples in our Hay River field laboratory. These analyses involved dry sieve analysis and visual examination, for the selection of representative or unique samples which were sent to Toronto for further analyses. Petrographic and wet sieve analyses were conducted on all of the samples that were subsequently sent to Toronto. In addition, organic impurity determination was conducted on those samples that exhibited potential for use in cement mortar or concrete. ... (Au)

B-10669
Some Late Middle Devonian (Polygnathus varcus Zone) conodonts from Central Mackenzie Valley, District of Mackenzie / Uyeno, T.T.
(Bulletin - Canada. Geological Survey, 267, 1978, p. 13-23, ill., table)
References.
ACU

Conodonts assignable to the Polygnathus varcus Zone (late Middle Devonian age) are described from central Mackenzie Valley. ... Three new species are introduced: Polygnathus? geniculatus, Pelekysgnathus bidentatus and P. mackenziensis. (Au)

B-10910
Upper Cretaceous marine teleosts from the basal Kanguk Formation, Banks Island, Northwest Territories / Wilson, M.V.H.
(Canadian journal of earth sciences, v. 15, no. 11, Nov. 1978, p.1799-1807, ill., map)
References.
ACU

... The purpose of the present paper is to record the presence of several teleostean taxa in the collection, to discuss the significance of the assemblage for the age and correlation of the fish-bearing formation, and to draw preliminary paleogeographic and paleoecologic conclusions based on the fish remains. ... (Au)

B-14060
Geochemistry of the Archean Yellowknife Supergroup / Jenner, G.A. Fryer, B.J. McLennan, S.M.
(Geochimica et cosmochimica acta, v. 45, no. 7, July 1981, p.1111-1129, figures, tables)
References.
ACU

The Yellowknife Supergroup, comprising supracrustal rocks of the Archean Slave Structural Province, differs markedly from most greenstone belt successions in having a predominance of sedimentary rocks (about 80%). ... In an attempt to define the nature and growth of the Archean crust in the Yellowknife area we examined the geochemistry of the sedimentary rocks and possible source rocks. ... (Au)

B-14370
Stratigraphy of southeastern Selwyn Basin in the Summit Lake area, Yukon Territory and Northwest Territories / Gordey, S.P.
(Paper - Canada. Geological Survey. 79- 1A, p. 13-16, ill., figure)
References.
ACU

The stratigraphy and structure of the Summit Lake area in Nahanni map area ... has been outlined previously ... This report presents additional information and modifications of the stratigraphy, and a stratigraphic cross-section from Mackenzie Mountains southwesterly into Selwyn Basin ... (Au)

B-14435
Geology of the Precambrian rocks of the Riviere Grandin and in part of the Marian River map areas, District of Mackenzie / McGlynn, J.C.
(Paper - Canada. Geological Survey, 79- 1A, p. 127-131, figures)
ACU

... In the Mazenod-Faber lakes area of the Marian River map area a belt of dacite-trachydacite ash flow tuffs with intercalated dacite flows and mudstone was outlined, along with masses of subvolcanic dacite to rhyodacite porphyry intrusions that are the intrusive equivalents of the ash flows. Younger plutonic rocks are described and their mode of intrusion suggested. In the Riviere Grandin area the stratigraphy of two sequences of volcanic and sedimentary rocks is outlined. A major unconformity at the base of the Hottah Lake sequence was mapped and the extent of the basement beneath the unconformity was defined. ... (Au)

B-15385
Pleistocene grebes from the Old Crow Basin, Yukon Territory / Fitzgerald, G.R.
(Canadian journal of earth sciences, v. 15, no. 12, Dec. 1978, p 1887-1892, ill., map, tables)
References.
ACU

Four grebe fossils of presumed late Pleistocene age are reported from the Old Crow Basin. They include one Red-necked Grebe (Podiceps grisegena), two Horned Grebes (Podiceps auritus) and an unidentified grebe (Podiceps sp.). Three of the specimens have a minimum age of approximately 10700 years BP. (Au)

B-16195
Geological and geographical guide to the Mackenzie Delta area / CSPG International Conference Facts and Principles of World Oil Occurrence, Calgary, Alberta, June 1978. Young, F.G. [Editor].
Calgary : Canadian Society of Petroleum Geologists, 1978.
iv, 158p. : ill., figures, maps ; 28cm.
CSPG 1978 guidebook.
References.
ACU

... The book is divided into three parts: Part A is concerned with establishing a regional geological background; Part B includes descriptions of the geology at each locality to be visited; Part C is a collection of articles of geographic and economic interest. ... (Au)

B-16365
Copper mineralization near an intra-Rapitan unconformity, Nite copper prospect, Mackenzie Mountains, Northwest Territories, Canada / Helmstaedt, H. Eisbacher, G.H. McGregor, J.A.
(Canadian journal of earth sciences, v. 16, no

1, Jan. 1979, p. 50-59, ill., figures, map)
References.
ACU

... The main showing on the prospect is structurally controlled and occurs in siliceous dolostone near the top of the folded and faulted Coppercap Formation, directly beneath an unconformity separating two local members of the Sayunei Formation (Rapitan Group). The copper was emplaced in tectonically fractured dolostone, precipitated from solutions that may have descended from copper-bearing conglomerates in the Rapitan Group above the unconformity, or ascended from weakly mineralized carbonates below. ... (Au)

B-16390
Precambrian biota from the Little Dal Group, Mackenzie Mountains, northwestern Canada / Hofmann, H.J. Aitken, J.D.
(Canadian journal of earth sciences, v. 16, no. 1, Jan. 1979, p. 150-166, ill., figures)
References.
ACU

Well preserved Precambrian algal microfossils and megafossils have been recovered in the northern Mackenzie Mountains from several levels and localities in a basinal, limestone-dominated rhythmite formation of the Little Dal Group. The microbiota includes the filaments Archaeotrichion, Taeniatum, and Siphonophycus, and the spaeromorph acritarchs Kildinella, Trachysphaeridium, Nucellosphaeridium, and Chuaria circularis. ... (Au)

B-16411
Submarine carbonate breccia beds - a depositional model for two-layer, sediment gravity flows from the Sekwi Formation (Lower Cambrian), Mackenzie Mountains, Northwest Territories, Canada / Krause, F.F. Oldershaw, A.E.
(Canadian journal of earth sciences, v. 16, no. 1, Jan. 1979, p. 189-199, ill., figures, map)
References.
ACU

In the Sekwi Formation, carbonate breccia beds interbedded with slope sediments are interpreted as submarine sediment gravity flows that formed a two-layer deposit during a single transport event. They are intermediate between true slumps and turbidites and may initiate by slumping anywhere on the continental slope and rise. Textural characteristics of the deposits are a function of downslope transport distance. (Au)

B-16810
Geology and petrochemistry of lower Aphebian (2.4-2.0 Ga) alkaline plutonic and hypabyssal rocks in the East Arm of Great Slave Lake, Northwest Territories / Badham, J.P.N.
(Canadian journal of earth sciences, v. 16, no. 1, Jan. 1979, p. 60-72, figures, tables)
References.
ACU

Two alkaline igneous complexes and three lines of diatreme breccias were emplaced in the East Arm of Great Slave Lake during the lower Proterozoic. ... One of the intrusions, the Easter Island dyke, was rotated subsequent to emplacement such that both top and bottom are now exposed. Field and petrographic data are indicative of progressive differentiation along (i.e., up) the dyke and are substantiated by chemical data. The differentiation history of the early gabbros of the Blachford Lake complex is similar. ... (Au)

B-20249
The tectonic development of the southern Beaufort Sea and its relationship to the origin of the Arctic Ocean Basin, by Yorath and Norris (1975) : discussion / Sobczak, L.W.
(Contribution - Canada. Earth Physics Branch, no. 679)
(Bulletin of Canadian petroleum geology, v. 25, no. 3, June 1977, p. 698-703)
References.
ACU

Yorath and Norris (1975) have made considerable use of geophysical data to support their ideas concerning the extension of the structural and stratigraphic framework of the Mackenzie Delta region onto the adjacent continental shelf. The present writer is of the opinion that insufficient attention has been given to the inherent ambiguity of the geophysical data. .... The following comments regarding the interpretation of the gravity, magnetic and seismic data are made with the intention of providing different avenues of thought for the reader .... (Au)

B-21245
1970 bottom sampling program - south coast of Beaufort Sea Mackenzie Bay to Liverpool Bay, Northwest Territories / Golder, Brawner and Associates Ltd Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA, 1970].
2 microfiches ; 11x16cm.
(APOA project no. 3 Ocean floor sampling Beaufort Sea 1970 Report, no. 1)
ACU, NFSMO

... The purpose of the drilling and sampling program was to determine the nature and characteristics of the sea bottom sediments, and to assess their general suitability for support of offshore oil drilling platforms and construction of artificial islands. The description and classification of the sea bottom sediments encountered during the investigation program are presented, together with the results of field and laboratory testing. The sea bottom sediments west of Kugmallit Bay consist essentially of clay and silt. The bottom sediments located east of Kugmallit Bay consist essentially of fine to medium sand. Relic permafrost was encountered in some of the exploratory holes at depths ranging from 20 ft. to 70 ft. below the sea bed. The significance of the permafrost relative to the support of artificial islands and offshore drilling platforms is discussed. ... (Au)

B-21253
Geological sampling and analytical program - Beaufort Sea / Lerand, M.M.
[Calgary : Distributed by APOA], 1971.
4 microfiches : ill. ; 11x16cm.
(APOA project no. 4 : Geological analysis of ocean floor samples. Report, no. 1)
Appendices.
References.
ACU, NFSMO

The project consisted of studies of the palynology, micropaleontology, organic geochemistry, mineralogy and sedimentology of the sea bottom soil samples obtained at eleven locations in the Beaufort Sea during APOA Project 3. ... (Au)

B-21610
Rare-earth and other trace element data bearing on the origin of Archaean granitic rocks from Yellowknife, Northwest Territories / Drury, S.A.
(Canadian journal of earth sciences, v. 16, no. 4, Apr. 1979, p. 809-815, figures, table)

References.
ACU

Trace element data, including rare-earth elements, for six granitic rocks and two metasediments from the Archaean granite-greenstone terrain of Yellowknife, Northwest Territories are presented. Three granodiorites from the synkinematic Western and South-east plutons show similar Rb, Sr, Th, Rb/Sr, and K/Rb to many high level granodiorites, but are enriched in Ba. Their rare-earth element (REE) patterns show enrichment of light REE relative to heavy REE, and lack Eu anomalies. These features, together with Sr isotope data, are compatible with their origin by partial melting of mantle depth garnet-bearing basaltic source rocks, and little if any detectable fraction of the rising magma. ... (Au)

B-24546
Gravel inventory survey, Richards Island and adjacent areas / Mollard (J.D.) and Associates Limited.
[Calgary : Distributed by APOA, 1972].
3 microfiches : figures, maps, tables ; 11x16cm.
(APOA project no. 42 : Mackenzie Delta gravel inventory. Report)
ACU, NFSMO

The proposed study includes a review of all available pertinent geological reports and maps, including relevant GSC data to obtain: 1. Best estimates of probable quantities of materials in absence of field drilling and testing; 2. Appraisal of quality of materials from a commercial-use standpoint; 3. Discussion of problems of development along with alternate methods of development; 4. Location of places to field test and suggestions for procedures for field testing. (Au)

B-26018
A trilobite zonation of Middle Ordovician rocks, southwestern District of Mackenzie / Ludvigsen, R.
[Ottawa] : Geological Survey of Canada, [c1979].
98p. : ill., figures ; 28cm.
(Bulletin - Canada. Geological Survey, 312)
ISBN 0-660-10165-3
Appendices.
Bibliography: p.48-52
ACU

The upper Sunblood, Esbataottine, and lower Whittaker Formations in the southern Mackenzie Mountains, southwestern District of Mackenzie, have yielded many collections of well preserved silicifed [sic] trilobites of Middle Ordovician age (Chazyan to Shermanian/Edenian; late Llanvirnian to late Caradocian). Based on occurrences of 41 species of bathyurid, cheirurid, and encrinurid trilobites and on presumed phyletic relationships among six species of Bathyurus, eight species of Ceraurinella, and eight species of Ceraurus (and Whittakerites), a sequence of nine assemblage zones is established. This is the first macrofaunal zonation of the Middle Ordovician interval in western North America. ... Twenty new species are described. ... (Au)

B-29521
Mesozoic and Tertiary geology of Banks Island, Arctic Canada : the history of an unstable craton margin / Miall, A.D.
[Ottawa] : Geological Survey of Canada, [c1979].
1 portfolio : ill. (part. fold. in pocket), maps, photos. ; 29cm.
(Memoir - Canada. Geological Survey, 387)
Bibliography: p.181-187.
ACU

More than 80 per cent of the surface area of Banks Island is underlain by Mesozoic and Tertiary rocks, the maximum thickness of which probably does not exceed 3000 m (10,000 ft). ... gravity and subsurface data show that the basin is divisible into a series of structural lows and highs, including Banks Basin, Big River Basin, Cardwell Basin and Storkerson Uplift. These structural elements have been in existence at least since the Early Cretaceous, as shown by facies and paleocurrent trends. ... (Au)

B-34371
Metasedimentary cordierite-gedrite rocks of archean age near Yellowknife, Canada / Kamineni, D.C.
(Precambrian research, v. 9, 1979, p. 289-301, ill., figures, tables)
References.
ACU

Archean metasedimentary rocks near Yellowknife comprising metagreywacke and meta-argillite, form broad aureoles around granite plutons. Cordierite-gedrite greywackes constitute an important metamorphic horizon within the aureoles. The chemical composition of the cordierite-gedrite greywackes, from Yellowknife compare well with greywackes reported from other localities. The cordierite-gedrite rocks and rocks free of these minerals have slight compositional differences which are thought to be of sedimentary origin and are the main controlling factors in the formation of coexisting gedrite and cordierite. (Au)

B-38873
Pleistocene mammals of the Yukon Territory / Harington, C.R.
Ottawa : National Library of Canada, 1978.
12 microfiches : ill., maps, photos. ; 10.5x14.8cm.
(Canadian theses on microfiche, no. 34359)
Thesis (Ph.D.) - University of Alberta, Edmonton, Alberta, 1977. - lxxi, 1060p.
Appendices.
Bibliography: p.998-1051
ACU

This study is based on a selection of specimens from a collection of approximately 14,000 Pleistocene vertebrate fossils .... Most of the ice age mammal material described has come from the Dawson and Old Crow areas ... Ten orders, 19 families, 44 genera and 64 species of mammals have been identified ... Approximately 40% of the species which occupied the Yukon during the ice age are extinct, and about 60% no longer occur in the region. ... An estimated 75% of the species (mainly cold-adapted) were derived from Eurasia or Beringia, while 25% (mainly dry, scrub grassland species) seem to have been derived from southern North America. (Au)

B-38938
The age and orthid fauna of the lower Whittaker Formation, in the southern Mackenzie Mountains, Northwest Territories / Wigington, R.J.S.
Ottawa : National Library of Canada, 1978.
2 microfiches : ill., maps, photos. ; 10.5x14.8cm.
(Canadian theses on microfiche, no. 36337)
Thesis (M.Sc.) - University of Western Ontario, London, Ontario, 1977. - xiii, 148p.
Appendices.
Bibliography: p.102-106
ACU

The lower Whittaker Formation (Ordovician) contains an abundant and silicified brachiopod fauna, the study of a portion (the Order

Orthidal) of which is the purpose of this thesis. ... A taxonomic study of the orthids was undertaken .... The lower Whittaker Formation, which has yielded 13 genera and 28 species of orthids, shares a number of taxa in common with several well studied Late Ordovician faunas in several parts of mid and western North America. ... Twenty-eight species of orthids are described, of which nine are new. (Au)

B-39420
The Imperial formation, northeastern Mackenzie Mountains, N.W.T. / Robbins, B.P.
Edmonton : Western Microfilm, 1960.
1 microfilm reel : ill., maps, photos. ; 35mm.
Thesis (M.Sc.) - University of Alberta, Edmonton, Alberta, 1960. - vi, 109p.
Appendices.
Bibliography: p.41-44.
ACU

Provenance, depositional environment and paleoecology of the Imperial formation were determined by means of a petrological and palaeontological study of four sections in the northeastern Mackenzie Mountains. ... The Imperial formation is entirely marine and was deposited in a warm, shallow sea. Terrestrial organic material indicates the presence of land at some intermediate distance to the west or northwest. (Au)

B-39730
Lower Cretaceaous and Jurassic rocks of McDougall Pass area and some adjacent areas of north-central Richardson Mountains, northern Yukon Territory and northwestern District of Mackenzie, N.W.T. (NTS-116P/9 and 116P/10) : a reappraisal / Jeletzky, J.A.
[Ottawa : Energy, Mines and Resources Canada, 1980].
35p. : ill., figures (1 fold in pocket), maps, photos. ; 28cm.
(Paper - Canada. Geological Survey, 78- 22)
References.
ACU

Jurassic and Lower Cretaceous rocks of the McDougall Pass area of north-central Richardson Mountains include (ascending order): a. The 70 to 100 m thick, shallow marine Bug Creek Sandstone of mid-Bajocian to ?early Collovian age. b. ?Mid-Callovian to Berriasian Husky Formation which is ... largely argillaceous in the northeastern part of the area. In the southwest the Husky is ... largely arenaceous ... c. The Late Hauterivian to Late Barremian Upper shale-siltstone division overlaps the Husky Formation disconformably and probably regionally discordantly. The normally intervening Lower sandstone and Coal-bearing divisions are absent by nondeposition. The area evidently formed part of strongly uplifted crestal zone of the Rat Uplift of Aklavik Arch from the early Valanginian to mid-Hauterivian. ... d. Only small, 15.5 to 100 m thick erosional remnants of the Upper sandstone division occur in the McDougall Pass area. These shallow marine rocks do not exhibit major facies changes anywhere in north-central Richardson Mountains. Therefore the whole area must have remained tectonically inactive in the early Aptian. (Au)

B-39934
The Lower Cretaceous Atkinson Point Formation (new name) on the Tuktoyaktuk Peninsula, N.W.T : a coastal fan-delta to marine sequence / Dixon, J.
(Bulletin of Canadian petroleum geology, v. 27, no. 2, June 1979, p. 163-182, ill., figures)
Appendix.
References.
ACU

The Aptian to Lower Albian conglomerate and sandstone of the Atkinson Point Formation (new name) were deposited over a limited area on the northwest flank of the Aklavik Arch. An initial regressive depositional phase produced conglomerate-sandstone cycles of braided-stream origin. ... An Early Albian transgression terminated braided-stream deposition and marine sandstone rapidly overlapped and overstepped earlier deposits. The areally limited distribution of the conglomerate-sandstone cycles, their braided-stream origin, the local source of the conglomerate clasts, and regional paleogeographic trends point to an origin of the cycles on a fan-delta grading laterally into a marine environment. (Au)

B-40282
Fold fabrics and emplacement of an Archean granitoid pluton, Cleft Lake, Northwest Territories / Fyson, W.K.
(Canadian journal of earth sciences, v. 17, no 3, Mar. 1980, p. 325-332, ill., figures)
References.
ACU

The axial-plane foliation of early-phase folds in metagreywacke is commonly obliterated by a secondary, regional, crenulation cleavage or schistosity and quartz segregation layering. Nevertheless, remnants are preserved as quartz inclusion trails in biotite porphyroblasts. ... Evidently the trails reflect trends existing before emplacement of the pluton. Later regional compression across the secondary cleavage apparently deflected folds around the pluton and thus displaced the porphyroblasts. These, however, were "locked" in orientation by the cleavage forming by a process of quartz diffusion. In a 10 square km area near the pluton, the secondary cleavage is less pronounced and dips at shallower angles than elsewhere. This suggests a modification to the regional strain such as expected above a satellite pluton rising during formation of the cleavage. (Au)

B-40436
Re-definition and subdivision of the Rapitan Group, Mackenzie Mountains / Eisbacher, G.H.
[Ottawa] : Geological Survey of Canada, 1978.
21p. : ill., maps (2 fold. in back) ; 28cm.
(Paper - Canada. Geological Survey, 77- 35)
ISBN 0-660-01523-4
References.
ACU

The Proterozoic Rapitan Group of the Mackenzie Mountains has been subdivided into four formations, from bottom to top as follows: Sayunei, Shezal, Twitya, and Keele. The Keele Formation has been included in the redefined Rapitan Group because of a gradual transition between the Twitya Formation and facies variations of the Keele Formation. Thickness changes, facies patterns, and sedimentary environments suggest that the basal Sayunei Formation was deposited in fault controlled basins. It consists of maroon or green siltstone and argillite and is interbedded with sharpclast-siltstones shed from tectonic scarps. The Shezal Formation consists of glacial-marine diamictites deposited in a relatively shallow marine environment. The Twitya Formation is composed of shale and sandstone laid down on an unstable prograding shelf. The Keele Formation is a varied assemblage of cyclic carbonates and clastics which was deposited on shallow-water banks. It grades laterally into deeper-water facies comprising mass-flow deposits. The role of contemporaneous faulting during the initial stages of Rapitan deposition is significant in the appraisal of stratabound copper and iron deposits of the Mackenzie Mountains. (Au)

B-41530
Description of the Hume, Funeral and Bear Rock Formations in the Candex et al. Dahadinni M-43A well, District of Mackenzie / Drees, N.C.M.
[Ottawa : Geological Survey of Canada], 1980.
26p. : ill., figures, photos. ; 28cm.
(Paper - Canada. Geological Survey, 78- 17)
References.
ACU

The upper part of the Bear Rock, the Funeral and the lower part of the Hume Formations are described using information obtained from a study of the cores of the Candex et al. Dahadinni M-43A well. Paleontological and stratigraphic evidence suggests that these formations range from ?Lower to Middle Devonian. ... In the Dahadinni well, the lower part of the Hume Formation and the upper part of the Funeral Formation are duplicated by a fault. The presence of several fractured zones and steeply to vertical dipping intervals in the Bear Rock Formation and the anomalously thick section of the Evaporitic member in the well suggest that the lower part of the Bear Rock Formation is repeated by folding or faulting. ... (Au)

B-43575
Devonian corals of late Eifelian age from the Ogilvie Formation of Yukon Territory / Pedder, A.E.H.
(Canadian journal of earth sciences, v. 17, no. 5, May 1980, p. 594-616, photos.)
References.
ACU

Coral faunas from 254.9-345.4 m above the base of the type section of the Ogilvie Formation on Mount Burgess, and from parts of other Ogilvie sections, are shown to be equivalent to late Eifelian coral faunas of the Hume Formation of western District of Mackenzie, and its correlatives in southwestern District of Mackenzie and northeastern British Columbia. ... (Au)

B-45713
Preliminary report on the volcanic suites of the east arm, Great Slave Lake, N.W.T. / Goff, S.P. Scarfe, C.M.
(Mineral industry report 1975, Northwest Territories / by P.J. Laporte [et al.]. EGS - Canada. DIAND. Exploration and Geological Services Unit, 78- 5, p. 129-134, ill.)
(North of 60)
References.
ACU

The East Arm, Great Slave Lake, is the site of a Proterozoic clastic wedge over 15 km in thickness. The wedge contains five major volcanic sequences which have not been previously examined in detail. The present study attempts to detail the petrology and chemistry of the lavas in order to test and elaborate on the current interpretation of the East Arm as the failed arm of a triple-rift system. ... (Au)

B-45721
Stratigraphic and paleoenvironmental analysis of the Sekwi Formation, Mackenzie Mountains, Northwest Territories / Krause, F.F. Oldershaw, A.E.
(Mineral industry report 1975, Northwest Territories / by P.J. Laporte [et al.]. EGS - Canada. DIAND. Exploration and Geological Services Unit, 78- 5, p. 136-156, ill.)
(North of 60)
References.
ACU

Lower Cambrian units and the Sekwi Formation exposed in the central and western Mackenzie Mountains, can be described in terms of five major depositional regimes. (1) Slope Deposits ... (2) Oolite Shoal Deposits ... (3) Clastic Deposits ... (4) Shallow Subtidal/Intertidal Deposits ... (5) Tidal Flat Deposits .... Detailed examination of 22 stratigraphic sections, covering an area of 60,000 square km, indicates that in a transit towards the west the five major lithofacies are representative of a coastal plain to continental shelf to continental rise sedimentary sequence formed on a gently subsiding trailing edge structure. ... Mineralization of the Sekwi Formation, in the sections examined is not extensive and, with the exception of late stage dolomitization, is not consistently related to any specific depositional, diagenetic or structural features. (Au)

B-45730
Stratigraphy and sedimentology, Upper Proterozoic Redstone copper belt, Mackenzie Mountains, N.W.T. - a preliminary report / Jefferson, C.W.
(Mineral industry report 1975, Northwest Territories / by P.J. Laporte [et al.]. EGS - Canada. DIAND. Exploration and Geological Services Unit, p. 157-169, ill.)
(North of 60)
References.
ACU

Key stratigrapic units of the Redstone copper belt are the stromatolitic upper carbonate subunit of the Little Dal Group; evaporites, red mudstones, sandstones and conglomerates of the Redstone River Formation; and limestone turbidites of the Coppercap Formation. ... Little Dal to Coppercap strata record a progression from shallow marine, platformal carbonate sedimentation, through restricted marine or lacustrine evaporite and subaerial clastic deposition, to clastic carbonate resedimentation below wave base. Tectonic instability and an embayed northwest-trending coast influenced sedimentation, especially during Redstone River time. Stratiform occurrences of disseminated copper sulphides are located in the transition zone between the Redstone River and Coppercap Formations, and range greatly in thickness, lateral extent and grade. ... Shape, size and grade variations of occurrences were possibly influenced at the time of sedimentation and diagenesis by local growth faults and details of coast morphology. (Au)

B-45942
Iron-formation in the Rapitan Group, Mackenzie Mountains, Yukon and Northwest Territories / Yeo, G.M.
(Mineral industry report 1975, Northwest Territories / by P.J. Laporte [et al.]. EGS - Canada. DIAND. Exploration and Geological Services Unit, 78- 5, p. 170-175, ill., figures)
(North of 60)
References.
ACU

The Upper Proterozoic Rapitan Group in Mackenzie Mountains is a dominantly glacial-marine and marine clastic succession totalling nearly 2,700 m. Its basal contact is a regionally significant unconformity. In addition to its unusual stratigraphic characteristics, the Rapitan includes extensive hematitic iron deposits, probably the largest in North America outside the Lake Superior region. It is suggested that the iron was precipitated from iron-enriched sea-water under glacial-marine influence. (Au)

B-47910
Carboniferous biostratigraphy and correlation, northeastern British Columbia and southwestern District of Mackenzie / Bamber, E.W. Mamet, B.L.
[Ottawa : Geological Survey of Canada, 1978].
65p. : ill., figures, 3 maps (fold. in pocket), plates ; 28cm.
(Bulletin - Canada. Geological Survey, 266)
References: p.18-19.
ACU

The thick, extremely variable succession of petroleum-bearing Carboniferous strata in northeastern British Columbia represents a significant episode in the geological history of western Canada. Precise stratigraphic correlations, which are so important for petroleum exploration within this succussion have long been hindered by lack of paleontological data. This bulletin presents the detailed paleontological control necessary for such internal correlations, outlines the main lithological changes within the area, and demonstrates that the local sequence of faunal zones is consistent with a previously established zonation applicable to the whole of western North America. . (Au)

B-47945
Taxonomy of Upper Jurassic-Lower Cretaceous microplankton from the Richardson Mountains, District of Mackenzie, Canada / Brideaux, W.W.
[Ottawa : Geological Survey of Canada, 1977].
89p. : ill., figures, plates ; 28cm.
(Bulletin - Canada. Geological Survey, 281)
References: p.43-49.
ACU

This paper describes the taxonomy and gives the known geologic ranges and distribution of 108 dinoflagellate and acritarch species in uppermost Jurassic and Lower Cretaceous rocks of northern Canada. The taxonomy is based on material from two subsurface sections located along the eastern flank of the Richardson Mountains, southwest of Aklavik and west-southwest of Fort McPherson, respectively, in the District of Mackenzie. (Au)

B-48518
The Holocene marine environment of the Beaufort Shelf / Vilks, G. Wagner, F.J.E. Pelletier, B.R.
[Ottawa : Geological Survey of Canada, 1979].
43p. : ill., figures, maps (3 fold. in pocket), tables ; 28cm.
(Bulletin - Canada. Geological Survey, 303)
Appendices: nos. 3-5 on fiche in pocket.
References.
ACU

... This paper describes the marine environment of the southern Beaufort Sea .... Sea floor morphology, water mass properties, ice cover, and sediments are discussed and related to the distribution of certain species of foraminifera and molluscs. A model of sediment transport on the continental shelf is proposed on the basis of textural relationships of surficial sediments. Holocene sedimentation and paleoecology are described from the evidence in sediment cores according to the relationships that govern the existing ecology and sediment dynamics of the area. ... (Au)

B-49522
Microfossils from the middle Proterozoic Dismal Lakes group, arctic Canada / Horodyski, R.J. Donaldson, J.A.
(Precambrian research, v. 11, no. 2, Apr. 1980, p. 125-159, ill., map, photos.)
References.
ACU

A 1200 Ma old microbiota is well preserved in black cherts of the Dismal Lakes Group about 130 km southwest of Coppermine .... These cherts appear to have formed by a combination of early diagenetic silicification of calcareous layers and permineralization of noncalcareous layers deposited in a very shallow subtidal or lower intertidal setting on a carbonate platform. The preserved assemblage is largely or entirely of cyanophytic affinity with coccoid forms dominating over filamentous forms. Many elements of this microbiota are morphologically similar to the 1900 Ma old Belcher Islands assemblage and 850 Ma old Bitter Springs assemblage. ... (Au)

B-49840
Valanginian miospore and microplankton assemblages from the northern Richardson Mountains, District of Mackenzie, Canada / McIntyre, D.J. Brideaux, W.W.
[Ottawa : Geological Survey of Canada, 1980].
57p. : ill., maps, plates ; 28cm.
(Bulletin - Canada. Geological Survey, 320)
References.
ACU

The taxonomy and biostratigraphy of pollen, spore, dinoflagellate and acritarch assemblages for the Bluish grey shale unit (lower to middle Valanginian) of the Lower sandstone division are described from two outcrop sections from the northern end of the Richardson Mountains, west of Aklavik, District of Mackenzie. Fifty-five species of pollen and spores and forty-eight species of dinoflagellates and acritarchs are recognized. ... (Au)

B-49980
Vein geometry and hydrostatics during Yellowknife mineralisation / Kerrich, R. Allison, I.
(Canadian journal of earth sciences, v. 15, no 10, Oct. 1978, p.1653-1660, figures)
References.
ACU

Three vein systems with distinct geometry and time relations are located within major ductile shear zones at Yellowknife. En echelon arrays of centimetre width quartz veins initiated at ~45 deg. to the shear zone boundaries and normal to the schistosity during initial translation on the structures. ... Gold bearing quartz veins of metre dimensions are disposed parallel to the schistosity, cross cutting early veins. This geometry requires the stress regime to switch from the former orientation such that the maximum principal stress is parallel to the schistosity, and the effective stress normal to the schistosity is tensile. The change of stress orientation is attributed to transient high fluid pressure which generated hydraulic fracturing and correspondingly high values of permeability. Under these conditions the shear zones act as conduits for massive fluid discharge; quartz and gold were precipitated from solutions cooling along the temperature-pressure (TP) gradient. ... Late stage lenticular gold-bearing quartz veins of metre dimensions were emplaced as vertical arrays within the shear zones, oriented normal to schistosity. These tension fractures formed when the stress regime reverted to the ambient conditions for stage 1 veining during a second episode of displacement on the shear zones. ... (Au)

B-50202
Morphological and ultrastructural features of Nikitinsporites canadensis Chaloner, a Devonian megaspore from the Frasnian of Canada / Taylor, T.N. Maihle, N.J. Hills, L.V.
(Review of palaeobotany and palynology, v. 30, no. 1/2, June 1980, p. 89-99, photos.)
References.

ACU

The morphology and ultrastructure of the Devonian megaspore Nikitinsporites canadensis is described. ... The probable function of the sporoderm appendages is discussed, and the systematic affinities of the taxon reviewed. (Au)

B-50628
Wenlockian graptolite reference section, Clearwater Creek, Nahanni National Park, Northwest Territories, Canada / Lenz, A.C.
(Canadian journal of earth sciences, v. 17, no. 8, Aug. 1980, p.1075-1086, ill., plates)
References.
ACU

A sequence of 20 m of Wenlockian graptolite-bearing strata is described from southern Northwest Territories. The sequence is relatively rich in graptolites and represents the best Wenlockian graptolite interval yet known in the Canadian Cordillera, even though the fauna is notably lacking in many of the typical Wenlockian species. ... (Au)

B-51063
Uranium-thorium enrichment in alkali olivine basalt magma - Simpson Islands dyke, Northwest Territories Canada / Burwash, R.A. Cavell, P.A.
(Contributions to mineralogy and petrology, v. 66, 1978, p. 243-250, ill., map)
Appendix.
References.
ACU

Uranium, thorium and potassium show parallel trends of geochemical enrichment in a differentiated dyke exposed on the Simpson Islands, in Great Slave Lake, Northwest Territories, Canada. ... The correlation coefficient between U and K20 is +0.985. ... The proposed petrogenetic scheme includes partial melting (5% or less) of upper mantle, gravitational differentiation of the melt within the upper mantle and progressive intrusions of mafic to felsic fractions into a dilational fracture related to the rifting of the Athapuscow aulacogen 2200 m.y. years ago. ... (Au)

B-51497
Mackenzie tectonic arc - Reflection of early basin configuration? / Aitken, J.D. Long, D.G.F.
(Geology, v. 6, no. 10, Oct. 1978, p. 626-629, ill., map)
References.
ACU

Parallelism is demonstrated between the arcuate structure of the Mackenzie Mountains and certain elements in the deformed pile of sedimentary rocks .... The data suggest that the configuration of the northeastern flank of the Proterozoic basin(s), established during the Helikian, preordained the arcuate form of the Mackenzie Mountains. (Au)

B-52540
A new shale-facies microbiota from the Middle Proterozoic Dismal Lakes Group, District of Mackenzie, Northwest Territories, Canada / Horodyski, R.J. Donaldson, J.A. Kerans, C.
(Canadian journal of earth sciences, v. 17, no. 9, Sept. 1980, p.1166-1173, figures)
References.
ACU

An assemblage of filamentous microfossils is preserved in black shales of the approximately 1.2 Ga old Dismal Lakes Group from a locality about 110 km west-southwest of Coppermine, Northwest Territories, Canada. These microfossils occur as empty, 1-13 macro m wide, tubular structures which are compressed parallel to lamination. ... This shale-facies microbiota appears to consist entirely of organisms that had relatively thick sheaths which were highly resistant to degradation and diagenetic alteration. This microfossil assemblage, as well as other Proterozoic shale-facies assemblages, probably are biased toward degradation-resistant taxa and may not be representative of the original microbial communities from which they were derived, nor of the Proterozoic biosphere. Nevertheless, such microfossils offer promise for intercontinental biostratigraphic correlation and provide data useful in understanding the evolution of Precambrian life. (Au)

B-52574
Pleistocene peccary, Platygonus compressus Le Conte, from Yukon Territory, Canada / Beebe, B.F.
(Canadian journal of earth sciences, v. 17, no. 9, Sept. 1980, p.1204-1209, ill.)
(NYRP contribution, no. 20)
References.
ACU

A fragmented radius of a late Pleistocene peccary, Platygonus compressus Le Conte, has been recovered near Old Crow, Yukon Territory, Canada. The known northern limit of the species is thus extended approximately 3000 km, from the northeastern United States to north of the Arctic Circle in Pleistocene Beringia, and confirms the cold tolerance of the species. The small size of the specimen supports a theory that small size in P. compressus is correlated with periglacial environment. Although the age of the specimen is uncertain, a mid-Wisconsin age is inferred on the basis of availability of a route of dispersal to Beringia and palaeoecological evidence which suggest a largely treeless tundra dominated by sedges and grasses, but with a rich herb component. (Au)

B-52582
Glacial Lake Coppermine, north-central District of Mackenzie, Northwest Territories / St.-Onge, D.A.
(Canadian journal of earth sciences, v. 17, no. 9, Sept. 1980, p.1310-1315, ill.)
References.
ACU

Field observation along the Coppermine River valley has revealed extensive deposits related to the presence of a major lake in late-glacial time. Numerous deltas determine a water level at approximately 360 m above sea level (asl). It is proposed that this former lake be called Glacial Lake Coppermine. Air-photo interpretation indicates that the valley was dammed by a glacial lobe covering the lowlands north of Coppermine Mountains and Dismal Lakes. During a high phase, the lake drained westward through the Dismal Lakes system to a high-level Great Bear Lake. Organic material, found in sediments infilling a river channel cut into deltaic sediments resting on top of a thick varve sequence, has yielded two C-14 dates: 8400+-80 (GSC-2959) on wood at the base of the channel and 3210+-60 (GSC-2998) on peat at the top of the fill. (Au)

B-52868
Petroleum source potential of the Boundary Creek formation, Beaufort-Mackenzie basin / Snowdon, L.R.
(Bulletin of Canadian petroleum geology, v. 28, no. 1, Mar. 1980, p. 46-58, ill., map)
References.
ACU

Organic geochemical analyses have been carried out on samples of the Boundary Creek Formation shale in order to determine its petroleum source potential. Solvent extraction, gas chromatographic analysis, total organic carbon analysis and elemental analysis of the kerogen indicate that this formation is an excellent potential hydrocarbon source rock in regions where it has been subjected to moderate thermal alteration and has, in fact, been the source for oils recovered from three different boreholes in the basin. ... (Au)

B-52876
The geology of the 1977 offshore hydrocarbon discoveries in the Beaufort-Mackenzie basin, N.W.T. / Jones, P.B.   Brache, J.   Lentin, J.K.
(Bulletin of Canadian petroleum geology, v. 28, no. 1, Mar. 1980, p. 81-102, ill., maps)
Paper presented at joint CSEG/CSPG Convention, Exploration Update '79, Calgary, June 12, 1979.
References.
ACU

Wells drilled in 1977 from drillships moored in the Canadian Beaufort Sea encountered Tertiary oil- and gas-bearing sands in large synsedimentary growth structures within the Beaufort-Mackenzie sedimentary basin. ... The Beaufort-Mackenzie sedimentary basin contains a thickness of more than 8 km of Tertiary and possible Upper Cretaceous clastic sediments. ... The Beaufort-Mackenzie basin lies at the junction of the Canada Basin and the continental margins of Alaska and northern Canada. It is believed to have formed as a result of major displacements of faults separating these crustal elements, in conjunction with strike-slip fault movements along the Canadian Cordillera and sea-floor spreading about the Alpha Ridge. (Au)

B-52884
The organic petrology of the upper Cretaceous Boundary Creek Formation, Beaufort-Mackenzie basin / Creaney, S.
(Bulletin of Canadian petroleum geology, v. 28, no. 1, Mar. 1980, p. 112-129, ill., map, plates (part. col.))
References.
ACU

A detailed petrographic study of the organic material in the Upper Cretaceous Boundary Creek Formation of the Beaufort-Mackenzie Basin has been used to establish a general picture of a) its depositional environment, b) variation in the type of organic material present, and c) its petroleum source potential. ... It contains the types and quantities of organic material that would make it an excellent source rock. However, it has not yet been sampled in an area where it is thermally mature enough to realize its full oil-generating potential. (Au)

B-57827
Correlation of gravity anomalies with Yellowknife Supergroup rocks, north arm, Great Slave Lake / Gibb, R.A.   Thomas, M.D.
(Canadian journal of earth sciences, v. 17, no. 11, Nov. 1980, p.1506-1516, figures, table)
(Contribution - Canada. Earth Physics Branch, no. 870)
References.
ACU

A gravity map compiled from observations made on the frozen surface of Great Slave Lake shows that the positive gravity anomaly associated with the Yellowknife greenstone belt extends offshore into the North Arm of the lake. ... Using the geology and rock density determinations on land for control, a three-dimensional geological model comprising a large number of prismatic blocks was derived from the gravity anomalies. ... According to the model, mafic volcanic rocks of the Kam Formation are generally 1-3 km thick with a maximum thickness of 7 km at the mouth of Yellowknife Bay. Greywacke and mudstone of the Burwash Formation vary in thickness from 1 to 3 km. ... The presence of a third pluton of granodiorite flanking the belt to the southwest is also inferred from the gravity data. Previous seismic work indicated a greenstone basin with an average thickness of about 10 km. However, reexamination of the seismic records suggests that weak arrivals interpreted as originating from the base of the greenstone belt are more likely to be pulses associated with earlier arrivals. (Au)

B-57851
Lead isochron dating of the Seton Formation, east arm of Great Slave Lake, Northwest Territories / Cumming, G.L.
(Canadian journal of earth sciences, v. 17, no. 11, Nov. 1980, p.1591-1593, ill.)
References.
ACU

Dating of "splitic" basalts from the Proterozoic Seton formation by the Pb/Pb method yields an age of 1804 +- 23 Ma(2 sigma), in excellent agreement with Rb-Sr data on the same rocks, when the latter ages are calculated with currently accepted decay constants. It seems unlikely that spilitization could have reset both the Rb-Sr and Pb/Pb systems to yield exactly the same ages with no geologic scatter about the isochrons in either case, and, therefore, it may be that the isochrons represent the true age of deposition of the lavas. (Au)

B-57860
Pleistocene loons of the Old Crow basin, Yukon Territory, Canada / Fitzgerald, G.R.
(Canadian journal of earth sciences, v. 17, no 11, Nov. 1980, p.1593-1598, figures, tables)
References.
ACU

Ten Pleistocene fossils representing loons of the species Gavia stellata, Gavia arctica, Gavia immer, and Gavia cf. adamsii are reported from the Old Crow Basin in the northern Yukon Territory, an area which is presently outside the range of G. adamsii. One specimen of G. arctica is from beds that correlate to beds dating >54,000 years BP and are presumed to be of Sangamon interglacial age. Two specimens of G. stellata and one of G. cf. adamsii have minimum dates of about 10,700 years BP. (Au)

B-58068
A cluster analysis of Middle Ordovician biofacies, southern Mackenzie Mountains / Hayes, B.J.R.
(Canadian journal of earth sciences, v. 17, no. 10, Oct. 1980, p.1377-1388, figures, tables)
References.
ACU

Collections of fossil trilobites, ostracods, bryozoans, and conodonts from Chazyan and Blackriveran strata of the southern Mackenzie Mountains are analyzed in an attempt to define biofacies, in terms of areal extent and faunal composition. Q-mode and R-mode cluster analyses, using Jaccard's coefficient and the unweighted pair-group method of clustering, are employed to delineate five biofacies. The interpretation of sedimentological features and composition of faunal assemblages shows that one nearshore biofacies, three progressively deeper shelf biofacies, and one continental slope biofacies are represented. A plot of biofacies succession through time in each measured section provides added support for the biofacies interpretations. (Au)

B-58076
The paleomagnetism of the Great Slave Supergroup : the Akaitcho River Formation / Evans, M.E.
Hoye, G.S. Bingham, D.K.
(Canadian journal of earth sciences, v. 17, no. 10, Oct. 1980, p.1389-1395, figures, tables)
References.
ACU

Results are reported from 120 oriented samples collected from 40 stratigraphic horizons spanning the Akaitcho River Formation of the Great Slave Supergroup. Thermal demagnetization experiments reveal the presence of multiphase remanence. Difference vectors indicate that the lower blocking temperatures carry a magnetic component attributable to the present field. The remanence remaining above 500-600 deg. C defines two polarity groups, but the two groups are not exactly antiparallel. This is interpreted in terms of a previously recognised widespread magnetic overprint acquired during uplift and cooling in the Coronation Geosyncline. ... A statistical procedure is employed to remove this overprint and obtain a best estimate of the original magnetization, which corresponds to a paleomagnetic pole on the western limb of the Coronation loop .... (Au)

B-58629
The Fort Smith radioactive belt, Northwest Territories / Charbonneau, B.W.
(Paper - Canada. Geological Survey, 80- 1C, p. 45-57, figures, table)
References.
ACU

The Fort Smith Belt is an elongate zone, about 200 km x 50 km, extending from the East Arm of Great Slave Lake southerly into northeastern Alberta. The major feature of the belt is that it is one of the most radioactive regions so far recognized in the Canadian Shield. ... The second characteristic feature ... is the development of a peripheral zone where eU is enriched relative to eTh .... The radioactive granitic rocks of the Fort Smith Belt are adjacent to uranium-thorium occurrences in the nearby Proterozoic Nonacho sediments but whether or not a genetic relationship exists between the two situations is uncertain. (Au)

B-58688
Rb-Sr age of the Lineament Lake granodiorite, District of Mackenzie : geological, geochemical setting and interpretation / Cameron, E.M.
(Paper - Canada. Geological Survey, 80- 1C, p. 223-226, figures, tables)
References.
ACU

The results of isotopic analyses on 12 whole rock samples ranging in composition from diorite to granodiorite are given .... Eleven sample points are collinear defining an isochron of age 2472 +- 31 Ma, initial Sr87/Sr86 0.7036 +- 0.0014 and MSWD 1.37. Samples from four localities in three rock units all fall on the isochron within experimental error except for sample number 8, one of three samples analyzed from the foliated granodiorite/tonalite/diorite unit .... We conclude from these results that we are unable to discriminate between the times of emplacement of these three bodies using the Rb-Sr whole rock approach and that the best age for the bodies sampled is the combined eleven point isochron age previously detailed. The results on sample number 8 document at least one location where the isotopic system has been disturbed. ... (Au)

B-58700
Rb-Sr studies of the Wilson Island Group, Great Slave Lake, District of Mackenzie : geological setting and interpretation / Frith, R.A.
(Paper - Canada. Geological Survey, 80- 1C, p. 229-233, tables, figures)
References.
ACU

The results of isotopic analyses on twelve whole rock samples and two mineral separates from the Wilson Island Group volcanics are given in Table 2. ... Localities are listed in Table 3. ... The initial Sr87/Sr86 ratio for the isochron of 0.7048 +- 0.0008 is somewhat higher than would be expected for rocks derived directly from the mantle at that time, indicating a secondary isotopic equilibration. The isotopic results for six samples of Wilson Island Group sandstone, presented in Table 1, do not form an isochron and are plotted in Figure 3 for comparison with the isochron obtained on the volcanics. (Au)

B-58718
Rb-Sr age of the Cotterill Lake granites, Indin Lake area, District of Mackenzie : geological setting and interpretation / Frith, R.A.
(Paper - Canada. Geological Survey, 80- 1C, p. 234-236, figures, tables)
References.
ACU

... presents the results of isotopic analyses on ten whole rock samples from the Cotterill Lake granites, which were collected in 1973 .... Nine of the resultant sample points are collinear and yield a Rb-Sr isochron of age 2532 +- 126 Ma, initial Sr87/Sr86 0.7027 +- 0.0019 and MSWD 1.16, which is shown on an isochron diagram ... Sample point number 10 falls somewhat below the line defined by the other nine samples. (Au)

B-59854
Upper Cambrian to Lower Ordovician conodont biostratigraphy and biofacies, Rabbitkettle Formation, District of Mackenzie / Landing, E.
Ludvigsen, R. Von Bitter, P.H.
[Toronto] : ROM, [1980].
42p. : ill., figures, tables ; 26cm.
(Life sciences contributions, no. 126)
ISBN 0-88854-265-8
References.
ACU

Conodonts have been recovered from two sections through the Cambrian-Ordovician boundary beds of the upper Rabbitkettle Formation, near the headwaters of the Broken Skull River, western Mackenzie Mountains. ... data suggest that lithofacies associations and biofacies developments in conodont distribution may prohibit detailed conodont-based correlations of Cambrian-Ordovician boundary beds. (Au)

B-60160
The carcinogenic load of the environment : benzo(a)pyrene in sediments of arctic waters / Stich, H.F. Dunn, B.P.
(Arctic, v. 33, no. 4, Dec. 1980, p. 807-814, figures, tables)
References.
ACU, NFSMO

Baseline levels of the chemical carcinogen benzo(a)pyrene were measured in arctic sediments. Levels were highest in samples from the Mackenzie River delta and adjacent areas of the Beaufort Sea. The distribution of carcinogen did not correspond to the location of inhabited areas - a natural rather than a man-made source for polycyclic aromatic hydrocarbons in arctic sediments is indicated.

(Au)

B-60178
Radiocarbon dates on some Quaternary mammals and artifacts from northern North America / Harington, C.R.
(Arctic, v. 33, no. 4, Dec. 1980, p. 815-832, figures, tables)
References.
ACU, NFSMD

Nine radiocarbon dates on five genera of Quaternary mammals from northern North America are discussed. Of particular interest are: (a) a 29,000-year-old artifact from the Yukon Territory; (b) the first evidence that steppe mammoths ... occupied eastern Beringia during the peak of the Wisconsin glaciation; (c) dates indicating that saiga antelopes ... and Yukon short-faced bears ... occupied the Yukon-Alaska region in mid-Wisconsin time; (d) dates indicating that bison ... lived near the arctic coast of the Northwest Territories, and tundra muskoxen ... lived in the western Yukon in late postglacial time; and (e) dates suggesting that tundra muskoxen have occupied the central Canadian Arctic Islands for the last 7000 years. (Au)

B-60291
Lithogeochemistry and hydrogeochemistry of uranium and associated elements in the Tombstone Batholith, Yukon, Canada / Olade, M.A. Goodfellow, W.D.
(Geochemical exploration 1978, proceedings / International Geochemical Exploration Symposium, 7th, Golden, Colorado, April 17-19, 1978. Edited by John R. Watterson [and] Paul K. Theobald. Rexdale, Ont. : Association of Exploration Geochemists, [1979], p. 407-428, figures, plate, tables)
References.
ACU

... As part of a uranium reconnaissance program, a geochemical study of the batholith was undertaken utilizing rocks, stream sediments and waters to investigate physical and chemical processes affecting primary and secondary dispersion in an alpine glaciated, high latitude environment in the northern Canadian Cordillera. ... (Au)

B-62103
Copper mineralization near an intra-Rapitan unconformity, Nite copper prospect, Mackenzie Mountains, Northwest Territories, Canada [review] / Aitken, J.D. Ruelle, J.C. Cook, D.G. Helmstaedt, H. Eisbacher, G.H. McGregor, J.A.
(Canadian journal of earth sciences, v. 18, no. 2, Feb. 1981, p. 410-418, figures)
Original article appears in Canadian journal of earth sciences, v. 16, no. 1, Jan. 1979.
References.
ACU

The discussion and reply generated by the original article by Aitken, Ruelle, and Cook revolve around the important regional implications of the "anomalous" geologic relationships at the Nite prospect, and differ in interpretation. The first article supports the interpretation "that the Nite prospect records a transfer of thrust displacement from a bedding-plane location beneath or possibly low within the Coppercap Formation to a bedding-plane location low in the Sayunei." The second article discusses alternate mechanisms for the Nite folds, "such as slumping or transfer of thrust displacement during Laramide deformation." (ASTIS)

B-62111
Paleomagnetism of the Great Slave Supergroup, Northwest Territories, Canada : multicomponent magnetization of the Kahochella Group / Reid, A.B. McMurray, E.W. Evans, M.E.
(Canadian journal of earth sciences, v. 18, no. 3, Mar. 1981, p. 574-583, figures, tables)
References.
ACU

Results are reported from 59 stratigraphic horizons spanning an aggregate of some 2000 m of sedimentary rocks of the Great Slave Supergroup, mostly located in the Kahochella Group. Partial demagnetization experiments and vector differences indicate that the magnetization involved is multicomponent, with a well-defined overprint masking an underlying magnetic component. The overprint has now been recognized in many formations of the Great Slave Supergroup and is interpreted as having been acquired in response to uplift and cooling following orogeny in the Coronation Geosyncline. It corresponds to a paleomagnetic pole .... Removal of the overprint reveals the underlying, presumed primary, magnetization .... The ages of these poles cannot be fixed precisely, but the available data suggest that the "primary" remanence was acquired about ~1.8 Ga, and the overprint about ~1.7 Ga. The two poles thus help define the Precambrian polar wander curve for Laurentia. In particular they help define the so-called Coronation loop, which reflects the response of Laurentia to the major orogeny in the Coronation Geosyncline. (Au)

B-64254
Organic geochemistry of the Upper Cretaceous-Tertiary delta complexes of the Beaufort-Mackenzie sedimentary basins, Northwest Territories / Snowdon, L.R.
[Ottawa] : Geological Survey of Canada, 1981.
46p. : ill., figures, tables ; 28cm.
(Bulletin - Canada. Geological Survey, 291)
ISBN 0-660-10167-X
Selected bibliography: p.42-46.
ACU

The organic fraction of a set of borehole drill cuttings and core samples representing fluviodeltaic, delta front and prodelta marine environments of deposition from the Upper Cretaceous-Tertiary of the Beaufort-Mackenzie Basin in northern Canada has been subjected to organic carbon analysis; extraction with benzene/methanol; open-column chromatographic fractionation into saturates, aromatics and resins, gas chromatographic analysis of the saturate fraction including quantification of the n-alkanes and isoprenoids; and kerogen isolation. ... Implications of this study are: (1) The classical petroleum generation sequence of heavy oil, oil, condensate and gas with increasing thermal alteration must be modified to include an early stage of condensate generation. (2) Organic facies do not necessarily correspond with sedimentary facies or depositional subenvironments and, therefore, the delta plain sandstone reservoirs of this basin are as likely to be juxtaposed with a source rock as are the delta front sands. (Au)

B-64645
The Early to Middle Devonian Bear Rock Formation in the type section and in other surface sections, District of Mackenzie / Morrow, D.W. Meijer-Drees, N.C.
(Paper - Canada. Geological Survey, 81- 1A, p. 107-114, figures, table)
References.
ACU

Exposures of the Devonian Bear Rock Formation in the Franklin Mountains, including the type section at Bear Rock near Fort Norman, that were examined during Operation Canol, have been re-examined in more detail. The Bear Rock Formation at the type section is composed of a lower brecciated interval 154.0 m thick and an upper, incompletely exposed interval of bedded, nonbrecciated and unfossiliforous limestone. ... An intermediate stage in the solution-collapse origin of the Bear Rock breccias was observed north of Great Bear River where mosaic breccias of angular greyish brown dolomite fragments are cemented with coarsely crystalline white gypsum. A new threefold classification of breccia fabrics developed for this study aided in the description of the Bear Rock breccia. (Au)

B-64653
Two Cambrian stratigraphic sections, eastern Nahanni map area, Mackenzie Mountains, District of Mackenzie / Fritz, W.H.
(Paper - Canada. Geological Survey, 81- 1A, p. 145-156, figures, plates, tables)
References.
ACU

In 1978 the writer assisted S.P. Gordey on Operation Nahanni by measuring and describing a Cambrian stratigraphic section northeast of the South Nahanni River .... The present report describes two more sections ... that are the result of additional field work in 1979. ... (Au)

B-64700
Revision of stratigraphic nomenclature, foreland thrust-fold belt of Wopmay Orogen, District of Mackenzie / Hoffman, P.F.
(Paper - Canada. Geological Survey, 81- 1A, p. 247-250, table)
References.
ACU

Certain revisions of stratigraphic nomenclature for the foreland of Wopmay Orogen are proposed to better reflect the main lithologic divisions and their tectonic settings. The "Recluse Formation" ... is elevated to a group consisting of three formations: the Tree River Formation, cratogenic siltstone; the Fontano Formation, hemipelagic shale; and the Asiak Formation, orogenic greywacke. It is proposed that the term "Epworth Group" be confined to the Odjick and Rocknest formations .... [It] comprises the passive-margin sedimentary prism of the orogen. The Akaitcho Group, an epicontinental rift-fill assemblage, underlies the Epworth Group. All three groups, plus two formations above the Recluse Group, the Cowles Lake and Takiyuak formations, may be collectively referred to as the Coronation Supergroup. Regional correlations are presented between the Coronation Supergroup, the Great Slave Supergroup and the Goulburn Group, thus linking the three major Aphebian basins marginal to the Slave Province. (Au)

B-64718
Contemporaneous thrusting and conjugate transcurrent faulting during the second collision in Wopmay Orogen : implications for the subsurface structure of post-orogenic outliers / Hoffman, P.F.   St.-Onge, M.R.
(Paper - Canada. Geological Survey, 81- 1A, p. 251-257, figures, map)
References.
ACU

The north-central part of Wopmay Orogen has been segmented into crudely hexagonal fault-blocks, about 75 km in diameter, that appear to have overriden each other from west to east and have relative displacements measured in kilometres both laterally and vertically. Block thrusting appears to have been superimposed on an ongoing system of conjugate transcurrent faulting in relieving east-west compression. The unusual fault system dates from the second of two collisional orogenies affecting this early Proterozoic continental margin and it deforms an earlier thrust-fold collisional orogenies affecting this early Proterozoic continental margin and it deforms an earlier thrust-fold belt, more familiar in style, that formed during the first collision. Backsliding on the hexagonal block-margin thrusts during post-orogenic extension could account for the graben-like outliers of post-orogenic clastics that have been a focus of uranium exploration in the area. (Au)

B-64785
Stratigraphy of a Proterozoic volcanic complex at Tuertok Lake, Wopmay Orogen, District of Mackenzie / Easton, R.M.
(Paper - Canada. Geological Survey, 81- 1A, p. 305-309, figures)
References.
ACU

The Tuertok Lake Volcanic Complex is one of the best exposed of several volcanic complexes present in the early Proterozoic Akaitcho Group. The complex consists of a 3 km thick basal sequence of mainly pillowed basalt, overlain by several rhyolite volcanic domes. The basals have been divided into nine stratigraphic "units". The lowest unit shows evidence of a brief period of erosion before deposition of the later units. A glomeroporphyritic gabbro intrudes the central part of the volcanic complex and may represent a sub-volcanic magma chamber. (Au)

B-64866
Stratigraphic framework of southeastern Selwyn Basin, Nahanni map area, Yukon Territory and District of Mackenzie / Gordey, S.P.   Wood, D   Anderson, R.G.
(Paper - Canada. Geological Survey, 81- 1A, p. 395-398, figures)
References.
ACU

... This report summarizes highlights of the bedrock geology studied during the 1980 field season, and supplements earlier and more complete descriptions of stratigraphy and structure of the Nahanni area .... (Au)

B-65951
Lower Devonian (Lochkovian) brachiopods and conodonts from the 'Delorme' formation, Cathedral Mountain, southwestern District of Mackenzie / Norris, A.W.   Uyeno, T.T.
[Ottawa : Geological Survey of Canada, 1981].
34p. : ill., figures, tables ; 28cm.
(Bulletin - Canada. Geological Survey, 305)
Selected bibliography: p.21-25.
ACU

This report describes an early Early Devonian brachiopod fauna and the stratigraphy of the source beds, a richly fossiliferous limestone unit referred to as the 'Delorme' Formation that outcrops on Cathedral Mountain, near Virginia Falls on the South Nahanni River, southwestern District of Mackenzie. A part of the report discusses and illustrates the associated conodonts, providing supplementary information on conodont zones represented and an independent dating of the brachiopods. The brachiopod assemblage is representative of a widely distributed Gypidula pelagica Zone, having Old World affinities and being known elsewhere in North America from the northern Yukon Territory, Canadian Arctic Islands, and central Nevada. ... (Au)

B-66150
Paleoecology of John Klondike bog, Fisherman Lake region, southwestern District of Mackenzie / Matthews, J.V.
[Ottawa : Geological Survey of Canada], 1980.
12p. : ill., figures (1 fold.), plate, table ; 28cm.
(Paper - Canada. Geological Survey, 80- 22)
ISBN 0-660-10864-x
References.
ACU

Pollen and macrofossils ... were recovered from the sediments of a 4.7m core taken at the site of a small bog near Fisherman Lake ... The core sequence spans approximately the last 9600 years. Its pollen and macrofossil contents largely portray the change of a small pond or lake into an elevated, frozen bog. Despite the domination of the pollen diagram by local vegetation, two regional trends are evident: the migration into the Fisherman Lake area of alder 8700 years ago and pine 6700 years ago. Apparently none of the pollen and macrofossil data portrays the mid-Holocene Altithermal, and in fact the only indication of climatic change in the entire core sequence may be the indirect evidence of permafrost development at the site during the Little Ice Age 300 to 500 years ago. (Au)

B-67300
A granitic diapir of batholithic dimensions at the west margin of the Churchill province / Bostock, H.H.
(Paper - Canada. Geological Survey, 81- 1B, p. 73-82, figures)
References.
ACU

Leucocratic granitic rocks with local remnants of charnockitic gneiss constitute the oldest rocks in the map area. Remnants of pelitic to psammitic high grade metasedimentary assemblage with minor calc-silicate and metavolcanic components occur largely about the margins of the granitic rocks. Three granodioritic bodies occur in the western part of the map area. Hypersthene-bearing metagabbro bodies intrude the Archean rocks. A megacrystic hypersthene-bearing granite batholith, of likely Hudsonian age, has diapirically intruded the Archean rocks in the eastern part of the area mapped. The intrusion can be divided into four structural zones: 1. A southwestern gently dipping thin basement; 2. A northwestern zone representing the deformed head of the pluton; 3. A central root zone; and 4. An eastern constricted zone. (Au)

B-67318
Geology of Grant Lake and Four Corners Lake map areas, Wopmay Orogen, District of Mackenzie. / Easton, R.M.
(Paper - Canada. Geological Survey, 81- 1B, p. 83-94, figures, table)
References.
ACU

Geological mapping was conducted at 1:50000 scale in the Grant Lake and Four Corners Lake map areas which straddle Zone 3 and Zone 4 of Wopmay Orogen. The geology of both map areas is similar although the Four Corners map area is 100 km north of Grant Lake. Two older rock sequences are present only in the Four Corners area. The oldest, the Sitiyok Igneous Complex, consists of tonalite gneiss intruded by granite, both of which are cut by basaltic dykes, now amphibolite. The Sitiyok Complex is rimmed by amphibolite and metapelite of the Ipiutak subgroup, the oldest unit of the Akaitcho Group. The Sityok Complex was present prior to metamorphism and deformation of the Akaitcho Group, and may represent basement to the group. ... The Akaitcho Group forms a belt 30 to 50 km wide and at least 150 km long that has been little prospected for base metals although it is similar to formations hosting 'Sullivan or MacArthur Type' Ag-Pb-Zn sulphide deposits. (Au)

B-67334
Dating the Horton River breakthrough, District of Mackenzie / Mackay, J.R.
(Paper - Canada. Geological Survey, 81- 1B, p. 129-132, figures)
References.
ACU

Horton River, which is one of the large rivers of the Northwest Territories, formerly flowed into Harrowby Bay but now discharges into Franklin Bay. The breakthrough shortened the length of the river by nearly 100 km. Three radiocarbon dates for driftwood stranded about 10 m above sea level along the old Horton River channel and one radiocarbon date for a driftwood log found 6 m above sea level near the present mouth suggest a breakthrough date at about A.D. 1800. Since breakthrough, fan-deltas from tributary creeks have segmented the abandoned channel into several large oxbow lakes; permafrost and ice-wedge polygons have grown along parts of the abandoned channel; gelifluction lobes have encroached onto the abandoned channel; lower Horton River and its tributaries have been rejuvenated; and Horton River has built a 30 square km delta into the relatively deep water of Franklin Bay. Although the A.D. 1800 date needs further confirmation, it is clear that the site has considerable promise for geomorphic and permafrost process studies in an area of continuous permafrost. (Au)

B-67741
Postglacial fossil fishes from Coppermine River, Northwest Territories, Canada / McAllister, D.E. St.-Onge, D.A.
(The Canadian field-naturalist, v. 95, no. 2, Apr.-June 1981, p. 203-205)
References.
ACU

Fossils remains referred to Arctic Charr ... Arctic Grayling ... Northern Pike ... and Slimy Culpin ... were collected from freshwater, sandy-silt deposits at 66 deg. 50 sec. N, 115 deg. 55 sec. W. These may provide the earliest yet known Northwest Territories records of fishes originating from the Mississippian or Beringian refugia approximately between 8400 and 9000 years BP. (Au)

B-67849
Petrology of the Fort Smith-Great Slave Lake radiometric high near Pilot Lake, N.W.T. / Burwash, R.A. Cape, D.F.
(Canadian journal of earth sciences, v. 18, no. 5, May 1981, p. 842-851, figures, tables)
References.
ACU

Near Pilot Lake, the east boundary of the Fort Smith-Great Slave Lake radiometric high coincides with the contact of a well-foliated, porphyroblastic microline-plagioclase-quartz-garnet-biotite gneiss (Pilot Lake Gneiss) with a hybrid assemblage of quartzite, mica schist, garnet-cordierite gneiss, and minor amphibolite (Variable Paragneiss). Anomalously high concentrations of uranium and thorium are associated with mafic-rich, lenticular bodies with a mineral assemblage biotite + monazite + zircon + ilmenite + hematite +- apatite +- plagioclase +- quartz. The mafic pods occur within both the Variable Paragneiss and the Pilot Lake Gneiss. Corundum and spinel occur in the mafic lenses and sillimanite, kyanite, and hypersthene in other inclusions in the Pilot Lake Gneiss. ... Regional tectonic extrapolations suggest that the pyroxene granulite event was Kenoran and the later amphibolite event Hudsonian. (Au)

B-70238
Ya-Ya granular resources study, 1975 / EBA Engineering Consultants Limited. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1975.
12 microfiches : ill., figures, tables ; 11x16cm.
(APOA project no. 88 : Ya-Ya Lake gravel testing program, 1975. Report, no. 1-3)
Appendices.
2 volumes in 3.
ACU, NFSMO

This report presents ... the findings of an exploratory drilling program carried out to evaluate the quality and quantity of borrow material in the Ya-Ya Lake esker-kame complex on Richards Island, N.W.T. ... Becker hammer drill and Mayhew 1000 rotary rig were used to obtain surface data. ... The stratigraphy of this important source of construction material has been interpreted from the borehole logs. ... The gravel is certainly suitable for all types of till construction. Further testing is required to adequately assess its overall performances as a concrete aggregate. The quantity of exploitable borrow materials has been conservatively estimated at 9.8 million cubic yards. . . (Au)

B-72311
Petrochemistry of late Aphebian (~1.8 Ga) calc-alkaline diorites from the east arm of Great Slave Lake, N.W.T., Canada / Badham, J.P.N.
(Canadian journal of earth sciences, v. 18, no 6, June 1981, p.1018-1028, figures, tables)
Appendix
References
ACU

The East Arm of Great Slave Lake is a 2.5-1.7 Ga graben connected to the contemporaneous Wopmay Orogen on the margins of the Arcnean (2.5 Ga) Slave craton. It contains three major groups of sedimentary and volcanic rocks. The two earlier ones are cut by ~1.79 Ga diorites, which outcrop over 220 km along the graben. ... The diorites were preferentially emplaced as laccoliths into a horizon of megabreccia thought to be the product of evaporite solution and collapse. The diorites are similar down the entire length of the East Arm. Main phases are usually plagioclase-hornblende poryphyritic, but younger and possibly high level phases contain biotite and quartz. the diorites are calc-alkaline but show no obvious chemical trends along the graben. They cannot be related directly to the proposed easterly dipping, late Aphebian subduction zone that generated the Wopmay Orogen. (Au)

B-72320
A geomagnetic depth sounding profile across the northern Yukon and the Mackenzie Delta region, Canada / DeLaurier, J.M. Plet, F. Drury, M.J.
(Canadian journal of earth sciences, v. 18, no 6, June 1981, p.1092-1100, figures, tables)
Appendix.
References.
ACU

Geomagnetic depth-sounding data have been obtained along a profile across the northern Yukon and the Mackenzie Delta region that approximately parallels the east-west flow of the auroral electrojets near the geomagnetic latitude of 70 deg. N. An internal conductive zone, in which electric currents are confined to a north-south direction, is defined by the large spatial variation of the vertical component of the time-varying geomagnetic field and of the horizontal component parallel to the profile. This conductive zone, with a half width of about 50 km, correlates with the Blow Trough, an element of the Beaufort-Mackenzie Basin, that contains at least 5 km of Mesozoic and Cenozoic clastic sediments. Model studies suggest that up to 10 km of conducting sedimentary materials occur within a basin-shaped structure and that a conducting zone (20 km wide) extends this basin to a depth of 20 km in the Earth's crust. This deeper conducting zone could be the result of movements along the Rapid Fault array, which dissects the Blow Trough and which may have fractured the materials beneath the basin or displaced sedimentary masses to greater depths. The observed negative Bouguer gravity anomaly is consistent with such a structure. (Au)

B-73709
Upper Devonian-Lower Carboniferous miospore biostratigraphy of the Imperial Formation, District of Mackenzie and Yukon / Braman, D.R.
Calgary : University of Calgary, 1981.
xiii, 313 leaves : ill. (part. fold. in pocket), figures, plates, tables ; 28cm.
(Grant-in-aid - Arctic Institute of North America)
Thesis (Ph.D.) - University of Calgary, 1981.
References.
ACU

The Imperial Formation, an alternating sandstone and shale sequence of Late Devonian-Early Carboniferous age, occurs over large areas of the District of Mackenzie and Yukon. ... The miospores which are common and generally well preserved, are shown to be useful in correlating the Imperial Formation from one location to another. Five sections and one sample locality, which include the Imperial River, Powell Creek, Mountain River, Arctic Red River, and Trail River sections and the Lower Trail River sample locality, are studied. Seven miospore biozones are recognized and these are compared to conodont ages determined from scarce limestones within the sections. Two unconformities are recognized by abrupt changes in miospore assemblages. ... (Au)

B-73849
International Precambrian-Cambrian boundary working group's 1979 field study to Mackenzie Mountains, Northwest Territories, Canada / Fritz, W.H.
(Paper - Canada. Geological Survey, 80- 1A, p. 41-45, figures)
References.
ACU

During the 1979 field season thirteen Working Group members studied five stratigraphic sections in the west-central Mackenzie Mountains, and selected a tentative boundary interval within map unit 12 of the Sekwi Mountain map area in order to focus Canadian research. Map unit 12 is part of the thick succession of late Precambrian and early Lower Cambrian interbedded shale, siltstone and quartzite, the upper portion of which is mainly dated by the use of trace fossils. The overlying late Lower Cambrian succession was also inspected. These strata belong to the Sekwi Formation, and consist of platform carbonates to the east and laterally equivalent slope and basin deposits to the west. Trilobites are the principal fossils used in correlating these younger strata. (Au)

B-73881
Reconnaissance geology of the Fort Smith-Hill Island Lake area, Northwest Territories / Bostock, H.H.
(Paper - Canada. Geological Survey, 80- 1A, p. 153-155, figure, table)
References.
ACU

Reconnaissance mapping of the Fort Smith-Hill Island Lake region .... suggests the following regional relationships. In the Fort Smith area the oldest rocks comprise massive, leucocratic, garnet-bearing granitic rocks with associated high grade metasediments and metagabbro. ... In the Hill Island Lake area the oldest rocks likely comprise an extensive plutonic complex which is the northern continuation of similar rocks in Saskatchewan. All of these rocks have been deformed and retrograded, and locally they have been mylonitized in zones that are commonly north-south trending. Sediments of low metamorphic grade, which occur in the central part of the region, are of two groups: the older consists predominantly of slate siltstones and greywacke and has been intruded by granite, whereas the younger consists mostly of conglomerate and sandstone (Nonacho Group) and is not known to be intruded by granite. The youngest rocks are northwest trending basalt to gabbro dykes. Molybdenite occurs in association with plagioclase rich breccia at Tsu Lake. (Au)

B-73911
Syntectonic plutonism in north-central Wopmay Orogen (Early Proterozoic), Hepburn Lake map area, District of Mackenzie / Hoffman, P.F. St.-Onge, M.R. Easton, R.M. Grotzinger, J. Schulze, D.E.
(Paper - Canada. Geological Survey, 80- 1A, p. 171-177, figures)
References.
ACU

Syn- to post-tectonic plutons in the area are clustered to form the composite Hepburn and Wentzel batholiths. Although granite is most abundant, the overall compositional range is from granite to pyroxenite. In general, the plutons become more basic and less deformed with time. The peak of metamorphism is related to the earliest granites, younger plutons being discordant with respect to the metamorphic isograds. Wentzel Batholith is the roof of a plutonic complex exposed in the core of a major anticlinorium. Hepburn Batholith comprises the floor and feeders to a pancake-shaped plutonic complex preserved in the keel of a synclinorium. The batholiths were emplaced during closure of these folds and after craton-vergent thrusting. Their setting is comparable to that of Cenozoic continental collision zones. (Au)

B-73920
"Hot-side-up" and "hot-side-down" metamorphic isograds in north-central Wopmay Orogen, Hepburn Lake map area, District of Mackenzie / St.-Onge, M.R. Hoffman, P.F.
(Paper - Canada. Geological Survey, 80- 1A, p. 179-182, figures)
References.
ACU

Of the three prograde metamorphic sequences in the area, two are related to Hepburn Batholith and one to Wentzel Batholith. All three are cut by postmetamorphic faults with significant vertical movement. The structural relief thus provided permits the determination that isograds on either side of Hepburn Batholith dip gently toward the batholith and are "hot-side-up". Isograds associated with Wentzel Batholith are "hot-side-down" and dip away from the batholith. It is concluded that the shape of Hepburn Batholith is a broad funnel fed from depth. Wentzel Batholith is the arched roof of an intrusive complex of unknown shape at depth. (Au)

B-73938
Conjugate transcurrent faults in north-central Wopmay Orogen (Early Proterozoic) and their dip-slip reactivation during post-orogenic extension, Hepburn Lake map area, District of Mackenzie / Hoffman, P.F.
(Paper - Canada. Geological Survey, 80- 1A, p. 183-185, map)
References.
ACU

Conjugate sets of northeast (right-slip) and northwest (left-slip) transcurrent faults are the youngest structures related to east-west compression in the orogen. Postorogenic east-west extension resulted in dip-slip reactivation of the transcurrent faults and initiation of northerly-trending normal faults in middle Proterozoic cover rocks. (Au)

B-73946
A preliminary palynological study of the Caribou Hills outcrop section along the Mackenzie River, District of Mackenzie / Ioannides, N.S. McIntyre, D.J.
(Paper - Canada. Geological Survey, 80- 1A, p. 197-208, figure, plates)
References.
ACU

Fifty-eight samples from the Upper Cretaceous and Lower Tertiary sediments of the Caribou Hills section in the Mackenzie Delta yielded diversified and well preserved microfloras. Four palynological associations have been recognized. By comparison with known assemblages, mainly from Western Canada, Campanian, Paleocene, Eocene and Oligocene ages are indicated. The microfloral transition between Paleocene and Eocene appears to be gradational whereas the break between Eocene and Oligocene is distinct. (Au)

B-73962
On the relative age of the Muskox Intrusion and the Coppermine River basalts, District of Mackenzie / Hoffman, P.F.
(Paper - Canada. Geological Survey, 80- 1A, p. 223-225, map)
References.
ACU

If the main northward extension of Canoe Lake Fault, which displaces the Muskox Intrusion (middle Proterozoic), follows the east branch, rather than the west branch as has previously been assumed, the arguments that the Muskox Intrusion must predate the Dismal Lakes Group are circumvented. The east branch requires a sharp bend in the fault, but this is typical of rift faulting today. Therefore, it is possible that the Muskox Intrusion is coeval, even comagmatic, with the Coppermine River basalts. (Au)

B-73970
Heavy mineral analysis of southern Beaufort Sea sediments / Costaschuk, S.M.
(Paper - Canada. Geological Survey, 80- 1A, p. 241-252, figures, plates, tables)
References.
ACU

This work is an extension of the sedimentological work undertaken in 1970 by the Marine Sciences Directorate (of the former Department of the Environment) and subsequently by the Geological Survey of Canada. The field work began with the Hudson 70 cruise into the Beaufort Sea and was supported with sampling from other vessels: CSS Baffin, CSS Parizeau, CSS Richardson, M/V Theta, M/V Pandera, with sampling from other vessels ... A helicopter was provided for several seasons through the Polar Continental Shelf Project. ... This study is based on an analysis of the heavy mineral fraction of bottom sediments collected during these early cruises and operations from helicopters over the ice. This report describes the mineral species and shows their distribution and origin in order to give a more complete history of sediment deposition in the region. (Au)

B-74039
Stratigraphic cross-section, Selwyn Basin to Mackenzie Platform, Nahanni map area, Yukon Territory and District of Mackenzie / Gordey, S.P.
(Paper - Canada. Geological Survey, 80- 1A, p. 353-355, figure)
References.
ACU

Nahanni map area is underlain by sedimentary rocks ranging in age from Late Proterozoic to Devono-Mississippian that change facies rapidly across generally northwest-trending hinge lines. Stratigraphic relations of northeastern platformal carbonate units (Mackenzie Platform) have been investigated ... as part of a regional mapping program refining the bedrock geology of Nahanni map area .... This preliminary report describes the stratigraphic relationships of the northeastern platformal carbonate units and, along with earlier reports on the westerly basinal facies (Selwyn Basin) ... forms a preliminary account of the stratigraphy of Nahanni map area. ... (Au)

B-74055
Early and Middle Ordovician conodont fauna from the mountain diatreme, northern Mackenzie Mountains, District of Mackenzie / McArthur, M.L. Tipnis, R.S. Godwin, C.I.
(Paper - Canada. Geological Survey, 80- 1A, p. 363-368, figures, table)
References.
ACU

Mafic diatremes cutting lower Paleozoic rocks in the northern Mackenzie Mountains are probable feeders for volcaniclastic strata described within basin facies rocks of the Misty Creek Embayment by Cecile (1978). Identification of conodonts in the xenoliths of the diatreme was undertaken to establish the maximum age of the diatreme and to aid in correlating the diatreme with equivalent volcanic strata. ... (Au)

B-74144
Sedimentary tectonics and glacial record in the Windermere Supergroup, Mackenzie Mountains, northwestern Canada / Eisbacher, G.H.
Ottawa : Geological Survey of Canada, 1981.
40p. : figures, photos. ; 28cm.
(Paper - Canada. Geological Survey, 80- 27)
References.
ACU

The Upper Proterozoic Windermere Supergroup of the Mackenzie and Wernecke mountains, northern Cordillera, was deposited between about 800 and 570 Ma. The margin of the predominantly clastic basin was controlled by faults with a north-northeasterly to northwesterly trend. The faults record rifting in the underlying craton and were intruded by diabase dykes and sills. Faulting was accompanied by extrusion of basaltic flows and is reflected in pronounced facies and thickness changes of the highest pre-Windermere and basal Windermere units (Redstone River, Coppercap, Sayunei formations). Faulting thus began to disrupt the pre-Windermere basinal framework prior to the changeover from carbonate to clastic sedimentation which characterizes the base of the Windermere Supergroup. The lower part of the Windermere Supergroup contains the record of a regional glaciation which can also be seen in other parts of the Cordillera. (Au)

B-74420
Stratigraphy and geochemistry of the Akaitcho Group, Hepburn Lake map area, District of Mackenzie : an initial drift succession in Wopmay Orogen (Early Proterozoic) / Easton, R.M.
(Paper - Canada. Geological Survey, 80- 1B, p. 47-57, figures, table)
References.
ACU

The Akaitcho Group consists of 8 to 10 km of metavolcanic and metasedimentary rocks located west of Hepburn Batholith and east of Wentzel Batholith in the central metamorphic core of Wopmay Orogen (Bear Province). Mapping ... revealed the following generalized stratigraphic sequence: (1) a lower basaltic unit of unknown thickness, (2) 3-4 km of arkosic turbidites with 200-300 m of pelite at the base, intruded by sills of rhyolite porphyry, (3) basalt and rhyolite volcanic complexes, and (4) 1-3 km of pelite and tuffaceous sedimentary rocks, locally with abundant basaltic extrusive and intrusive rocks. ... The Akaitcho Group is ... interpreted to be older than and conformably beneath the western Epworth Group. The Akaitcho Group metabasalts are LREE enriched tholeiites with geochemical similarities to marginal basin basalts, Group II oceanic basalts and continental flood basalts. ... Its stratigraphic position beneath the lower Epworth Group, a passive continental margin succession, is consistent with the hypothesis that the Akaitcho Group preserves products of initial rifting in Wopmay Orogen. (Au)

B-74470
Nahanni integrated multidisciplinary pilot project geochemical studies part I : geochemistry and mineralogy of shales, cherts, carbonates and volcanic rocks from the Road River Formation, Misty Creek Embayment, Northwest Territories / Goodfellow, W.D. Jonasson, I.R. Cecile, M.P.
(Paper - Canada. Geological Survey, 80- 1B, p. 149-161, figures, tables)
References.
ACU

Geochemical and mineralogical studies of Section 44 through the Road River Formation were used to substantiate and define chemically earlier divisions as well as to subdivide further each unit. A period of volcanic activity represented by mafic tuffs and flows in unit RRc in Section 40 was recognized in Section 44 by high contents of TiO_2, Na_2O and MgO present in leucoxene, plagioclase and chlorite, respectively. Associated with this volcanic event are cherts and carbonaceous metalliferous shales, interpreted as resulting from the influx of nutrients and base metals during hydrothermal activity. A second period of volcanism ... is interpreted to have occurred during the Middle Cambrian in unit RRs. ... The Lower to Middle Ordovician mafic volcanic rocks and hypabyssal equivalents present in Section 40 are intensely altered, most likely alkali in composition, and characterized by above average contents of F, Pb, Co, As, Sb, Ba, Ce, V, La and Be. The Ba forms clear crystals of celsian that commonly are situated adjacent to K-feldspar. (Au)

B-74489
Nahanni integrated multidisciplinary pilot project geochemical studies part 2 : some thoughts on the source, transportation and concentration of elements in shales of the Misty Creek Embayment, Northwest Territories / Goodfellow, W.D. Jonasson, I.R. Cecile, M.P.
(Paper - Canada. Geological Survey, 80- 1B, p. 163-171, figures, tables)
References.
ACU

... Although certain marine organisms can accumulate metals many times their content in seawater, it is considered unlikely that this mechanism alone can explain the high levels of certain elements found in the Misty Creek shales. The enrichment in the volcanic rock of some of the same elements found to be high in the interbedded shales and cherts ... supports the view that at least some of the metals owe their origins to hydrothermal fluids expelled onto the seafloor during volcanic activity. This mechanism of metal supply and accumulation is active on ocean ridges and other tectonically active areas where geothermal fluids are supplying elements that are concentrated in the associated sediments. It is the intention of this paper to discuss possible sources of the elements noted above and to suggest mechanisms by which they might be dispersed from presumed spring-vent discharge areas into the sediments of the Misty Creek paleobasin. (Au)

B-74497
Revision of the Tertiary Reindeer Formation in the Caribou Hills, District of Mackenzie / Price, L.L. McNeil, D.H. Ioannides, N.S.
(Paper - Canada. Geological Survey, 80- 1B, p. 179-184, figures)
References.
ACU

Field study of the predominantly terrestrial Tertiary Reindeer Formation in the Caribou Hills was undertaken to resolve variance in use of the name "Reindeer Formation" in the Beaufort-Mackenzie basin. Consequently, beds from the lower and upper parts of the formation have been reassigned after consideration of the observed lithologic divisions, refinements in stratigraphic correlation, and previous nomenclatural usage. The section is now divided into the Paleocene Moose Channel Formation ... the revised Paleocene-Early Eocene Reindeer Formation ... an unnamed white-clay unit ... tentatively dated Oligocenn .... and the Beaufort(?) Formation ... of probable Miocene age, consisting of poorly exposed limonitic gravels or conglomerates and sandstones with minor lenses of whitish claystone. Significant stratigraphic relationships in the section include: Tertiary overstep of Cretaceous rocks; conformity between the Paleocene Moose Channel Formation and the Paleocene-Eocene Reindeer Formation; unconformity between the Reindeer Formation and the white-clay unit; and a rapid northward thickening of the Reindeer Formation. (Au)

B-74527
Uranium and thorium variations in two monzonitic laccoliths, east arm of Great Slave Lake, District of Mackenzie / Gandhi, S.S. Prasad, N.
(Paper - Canada. Geological Survey, 80- 1B, p. 233-240, figures, tables)
References.
ACU

Two cogenetic monzonitic laccoliths, one hosting uraniferous actinolite-apatite-magnetite veins, were selected for a comparative petrochemical study. An unbalanced nested sampling design was adopted to estimate variability at four statistical levels within each laccolith and also between them. ... The data available to date are for uranium and thorium contents of the samples, specific gravity, and gamma ray spectrometer readings at the sample sites. The mean contents of uranium and thorium in the two sets of samples are 6.02 and 6.35 ppm U and 27.53 and 27.85 ppm Th. The corresponding means from the spectrometer readings are very close to these means. An analysis of variance shows that most of the variations in the contents of these elements occur at local rather than regional level in each of the laccoliths, and the variance between them is negligible. Specific Gravity ranges from 2.62 to 2.73. The two laccoliths are thus statistically very similar, and the present data suggest that uranium in the veins may have been derived from suitable country rock rather than the host intrusion. (Au)

B-75418
Paleomagnetism of the Late Proterozoic sills in the Tsezotene Formation, Mackenzie Mountains, Northwest Territories, Canada / Park, J.K.
(Canadian journal of earth sciences, v. 18, no. 10, Oct. 1981, p.1572-1580, figures, tables)
References.
ACU

A paleomagnetic study was conducted on a regionally extensive diabase sill intruding the upper part of the Helikian (?) Tsezotene Formation located in the Mackenzie Mountains Supergroup of northwestern Canada. Twelve sites, one from a lower sill at one locality, were sampled over a distance of about 200 km. Two general magnetizations presumably carried by maghemite (AR:38 specimens; 272 deg., 00 deg.; pole 139 deg. E, 01 deg. N; K=34, A95=4 deg.) and hematite (B: 18 specimens; 269 deg., -01 deg.; pole 141 deg. E, 01 deg. S; K=27, A95=7 deg.) were resolved by using a two-stage treatment method (alternating field treatment of 20-45 mT followed by thermal demagnetization to about 650 deg. C) in combination with vector subtraction and vector diagrams. B has normal (Bn:6 specimens) and reverse (BR:17 specimens) components. Another magnetization (RM:30 specimens; 086 deg., +55 deg.; k=3) carried by magnetite appears to be a resultant of normal and reverse components, though it may include a secondary Cretaceous component. It is likely that the maghemite and hematite are deuteric alteration products of the magnetite and that they retain the primary direction probably residing in the unresolved magnetite components of RM. (Au)

B-75450
Paleomagnetism of basic intrusions from the Brock Inlier, Northwest Territories, Canada / Park, J.K.
(Canadian journal of earth sciences, v. 18, no. 10, Oct. 1981, p.1637-1641, figures, table)
(Contribution - Canada. Earth Physics Branch, no. 942)
References.
ACU

Basic intrusions of the Brock Inlier of the Northwest Territories are shown by means of paleomagnetism to be related to the Franklin diabases (specifically the Coronation suite) of the Canadian Shield, thus verifying previous correlations made through geological considerations and radiometric dating. A predominantly reverse (AR) and occasionally normal (AN), presumably magnetite, magnetic component were resolved in single specimens from five separate sills (five sites) using alternating field and subsequent thermal treatment in conjunction with vector diagrams. A presumably hematite component antiparallel to AR was recovered at one site using converging great circles. The mean A direction is at 074 deg., -07 deg. (k=15) and the average of the site poles at 165 deg. E, 02 deg. S (N=5, K=40, A95=12 deg.), close to that of the Coronation suite. Two specimens from a single dyke site yielded a normal AN-type pole similar to that of the Franklin dykes to the east of the Coronation suite. (Au)

B-75469
Sedimentology of the Eocene Taglu Delta, Beaufort-Mackenzie Basin : example of a river-dominant delta / Dixon, J.
[Ottawa : Geological Survey of Canada, 1981].
vi, 11p. : figures (1 fold. in pocket), table ; 28cm.
(Paper - Canada. Geological Survey, 80- 11)
ISBN 0-660-10854-2
Appendices.
References.
ACU

The Taglu Delta represents the final clastic delta wedge of the lower Tertiary Reindeer Formation before burial under a thick marine mudstone succession. Specific depositional subenvironments can be identified from core material and include delta front, distributary mouth bar, distributary channel, crevasse splay and interdistributary bay. Integration of core interpretations with geophysical log shapes and their extrapolation to uncored wells allows a three dimensional depositional framework to be established. Lobate distribution of sands and the prominence of channel sands points to a river-dominant delta. The character of the channel deposits suggests that some channels may have been braided. A relatively thick sequence of lower delta plain deposits also points to a moderate to strongly subsiding receiving basin and/or rapid delta compaction. Sands from the various subenvironments are predominantly quartz and chert. Other, less common, components include plagioclase, muscovite and clasts of limestone, volcanic rock, schist, coal and shale. Two main source areas seem likely for the Taglu delta, one to the south and the other as far west as Alaska. (Au)

B-75485
Pachygrycia, a new Sonneratia-like ammonite from the Lower Cretaceous (Earliest Albian?) of northern Canada / Jeletzky, J.A. Stelck, C.R.
[Ottawa : Geological Survey of Canada, 1981].
25p. : ill., figures, plates ; 28cm.
(Paper - Canada. Geological Survey, 80- 20)
ISBN 0-660-10962-X
References.
ACU

The desmoceratid genus Pachygrycia n.gen., an external homeomorph of Sonneratia Bayle 1978, represents the earliest Albian? ammonite fauna yet recognized in the Mackenzie River drainage of Northwest Territories, northern Yukon Territory and from Banks Island, District of Franklin. This widespread, regionally zonal fauna is correlated tentatively with the basal part of the European Leymeriella Tardefurcata Zone. ... The new genus is interpreted as a derivative of a still unknown boreal beudanticeratinid stock. That Grantziceras-like stock also gave rise to such taxa as Grantziceras Imlay, Cleoniceras Parona and Bonarelli s. str., Neosaynella Casey and Grycia Imlay. All these taxa comprising the subfamily Cleoniceratinae as amended by the writers are removed from the family Hoplitidae H. Douville 1890 and assigned to the family Desmoceratidae Zittel 1895. A northeast Asian origin is suggested for the Cleoniceratinae as amended. (Au)

B-79790
Late Pleistocene fish fossils of Coregonus, Stenodus, Thymallus, Catostomus, Lota, and Cottus from the Old Crow Basin, northern Yukon, Canada / Cumbaa, S.L. McAllister, D.E. Morlan, R.E.
(Canadian journal of earth sciences, v. 18, no. 11, Nov. 1981, p.1740-1754, figures)
References.
ACU

Fossils of the broad whitefish, ... the longnose sucker, ... and the burbot, ... are reported for the first time from North America and a freshwater sculpin, ... for the first time from Yukon Territory. The known fossil occurrence of the Arctic grayling, ... in North America is extended from 32000 to about 60000 years BP. These six fossils represent about one sixth of the present-day Yukon freshwater ichthyofauna of 35 species. These fossils provide a major test for the method of determining glacial refugia based on geographic variation of morphological or protein characters. They confirm that these taxa were present prior to and presumably survived the Wisconsinan glaciation in a Beringian refugium. The occurrence of these fossils, all subarctic or subarctic-boreal species known at present in the same area, does not suggest a paleoenvironment greatly different from the present one. (Au)

B-80543
An Archean ignimbrite at Yellowknife and its relationship to the Kam Formation basalts / Padgham, W.A.
(Papers - Symposium on Early Precambrian Volcanology and Sedimentology in the Light of the Recent, Quebec City, 23-25 May, 1979. Precambrian research, v. 12, no. 1/4, special issue, 1980, p. 99-113, figures)
References.
ACU

Archean ignimbrites are rare, but a number have been reported from the Slave Province. An excellent example is exposed along the west shore of Yellowknife Bay immediately east of Giant Mine. Dominant supracrustals at Yellowknife include 10,000 m of massive and pillowed basalt (Kam Formation) in the west and greywacke and slate (Burwash Formation) to the east, major units which cover hundreds of square kilometers. ... The ignimbrite, its associated pillow flows and thin-bedded cherty sediments suggest complex siliceous volcanism at the termination of the Kam Formation deposition by which time there had been shallowing of the western part of the basin in which the Kam and Burwash Formations were deposited. The ignimbrite section is a most complex part of the Kam-Jackson Formation contact zone that has been fortuitously preserved by faulting. (Au)

B-80659
Regional metallogeny of the northern cordillera : biostratigraphy, correlation and metallogenic significance of bedded barite occurrences in eastern Yukon and western District of Mackenzie / Dawson, K.M. Orchard, J.
(Paper - Canada. Geological Survey, 82- 1C, p. 31-38, figures)
Appendix.
References.
ACU

Limestone beds in and adjacent to nine bedded barite occurrences in the Macmillan Pass-Howards Pass region yield conodont faunas that define two principal intervals of barite deposition in the lower Earn Group and one in the upper Earn Group. The oldest is of late Middle Devonian age, the next is early Upper Devonian, and the youngest is of upper Early

Mississippian age. The early Upper Devonian (Frasnian) barite interval is of regional extent and corresponds to one of the stratiform Pb-Zn-Ag-Ba horizons at Macmillan Pass. (Au)

B-80942
Divergent fold overturning and regional tectonics, southern Slave Province, Northwest Territories / Fyson, W.K.
(Precambrian research, v. 14, no. 2, Feb. 1981, p. 107-118, figures)
References.
ACU

Map analysis of metasedimentary belts within the southern part of the Archean Slave Province reveals that folds are inclined or overturned in a pattern which can be related to regional compression during emplacement of granitic plutons. ... The structural relations suggest that initially upright folds were tilted and overturned during a phase of regional E-W compression similar to that which formed the cleavage. Strain modifications leading to the overturning were apparently due to upper-level movement outward from fan axes accompanied by uplift of granitic plutons. Intracrustal under-thrusting during the compression could account for the predominance of westerly over-turning. (Au)

B-81507
Plateau overthrust and its hydrocarbon potential, Mackenzie Mountains, Northwest Territories / Cecile, M.P. Cook, D.G. Snowdon, L.R.
(Paper - Canada. Geological Survey, 82- 1A, p. 89-94, figures, tables)
References.
ACU

A structural cross-section through the northern Mackenzie Mountains shows that the hanging wall of the Plateau Thrust has moved as much as 35 km northeastward over Paleozoic carbonates and carbonaceous shales. This overthrusting produces a large (4000 square km) area with previously unrecognized potential for trapped hydrocarbon deposits. Analyses of surface samples studied to determine the level of organic alternation are ambiguous because of weathering, evaporation loss and low total organic carbon, but indicate alteration is mature to overmature with respect to oil. Comparison of this section with a second cross-section located in the central Mackenzie Mountains shows the Plateau Thrust achieves shortening on a much higher structural level than a major thrust immediately southeast of the Plateau Thrust. Compensation for the different level of shortening is noted in the greater shortening, expressed in part by increased numbers of closely spaced folds in strata northeast of the southern thrust, when compared to footwall strata northeast of the Plateau Thrust. (Au)

B-81515
Correlations between the Sunblood, Esbataottine and Whittaker formations in the Lower Paleozoic sequence of the southern Mackenzie Mountains / Morrow, D.W.
(Paper - Canada. Geological Survey, 82- 1A, p. 95-98, figures)
References.
ACU

A large part of the Sunblood Formation that is shown on a recent Geological Survey of Canada map of the Virginia Falls map area (95F) in the region around Sunblood Mountain should be assigned to the Esbataottine and Whittaker formations. Also, the Esbataottine Formation in the Virginia Falls map area was found to correlate stratigraphically with the entire lower member of the Whittaker Formation at its type section on the Whittaker Range in the Root River map area (95 K). Previously the Esbataottine Formation was considered to correlate only with the lower part of the lower member of the Whittaker Formation. (Au)

B-81523
Geology of the central Wopmay Orogen (Early Proterozoic), Bear Province, District of Mackenzie : Redrock Lake and the eastern portion of Calder River map areas / St.-Onge, M.R. King, J.E. Lalonde, A.E.
(Paper - Canada. Geological Survey, 82- 1A, p. 99-108, figures)
References.
ACU

Early Proterozoic and Archean rocks east of the Wopmay Fault Zone, ... are involved to a greater or lesser degree in one or both collisional orogenies of Wopmay Orogen. The Carousel Massif, an anticline cored by Archean basement, is a disharmonic fold structure in the Asiak fold-thrust belt that formed during the first collision. To the west, the Hepburn Batholith is composed of over 40 discrete plutons in the northern part of the area, each more or less deformed by the first collision event. The orogenic plutons vary in composition from hornblende-diorites to biotite-granites and locally contain abundant partly resorbed supracrustal xenoliths. Intrusive age relationships and the extent of development of a metamorphic fabric indicate at least two periods of emplacement for both granite and tonalite plutons. ... West of the batholith the structural style of the Akaitcho Group is dominated by early east-verging recumbent folds at all metamorphic grades investigated, from andalusite-muscovite schists to kyanite-granulites. ... The present Akaitcho Group map pattern is controlled by a series of faults outlining crustal blocks formed during the second collision event. Emplacement of one of these crustal blocks has juxtaposed rocks containing bathozone 6 and bathozone 3 mineral assemblages. The westernmost Akaitcho Group is characterized by a set of north-south fault blocks marking major breaks in the structural and metamorphic map patterns. Together these blocks constitute the Wopmay Fault Zone. (Au)

B-81531
Cloos Nappe in Wopmay Orogen : significance for stratigraphy and structure of the Akaitcho Group, and implications for opening and closing of an Early Proterozoic continental margin / Hoffman, P.F. Pelletier, K.S.
(Paper - Canada. Geological Survey, 82- 1A, p. 109-115, figures, table)
References.
ACU

Cloos Nappe is a recumbent, eastward-verging, refolded anticlinorium that exposes thick submarine bimodal volcanics and sediments, stratigraphically beneath the Epworth Group, near the east side of the Hepburn Metamorphic-Plutonic Belt (Zone 3) in the 1.9 Ga Wopmay Orogen. The rocks are correlative with the Akaitcho Group, exposed in the west half of Zone 3, and are interpreted as rift-basin deposits related to crustal stretching prior to break-up along the west margin of the Archean Slave Province. The nappe structures in the Akaitcho Group in Zone 3 may have formed when listric normal faults developed during crustal stretching were rejuvenated as thrusts, re-thickening the crust and shortening the depositional prism, during early stages of the first collision that affects the margin. (Au)

B-81540
A preliminary account of the internal stratigraphy of the Rocknest Formation, foreland thrust-fold belt of Wopmay Orogen, District of Mackenzie / Grotzinger, J.P.
(Paper - Canada. Geological Survey, 82- 1A, p. 117-118, figures)
References.
ACU

Five measured sections of the Rocknest Formation in the northeastern part of the foreland thrust-fold belt of Wopmay Orogen are described. Three of these sections are representative of shelf facies of the Rocknest Formation, one represents the slope facies, and one shows a transition from shelf to slope facies. The Formation is subdivided into five informal members that are correlated over the shelf. The subdivision applies only to the shelf sections. (Au)

B-81574
Quaternary geology of upper Coppermine river valley, District of Mackenzie / St.-Onge, D.A. Guay, F.
(Paper - Canada. Geological Survey, 82- 1A, p. 127-129, figures)
References.
ACU

Perched deltas of coarse gravel at an average altitude of approximately 365 m a.s.l. indicate that glacial Lake Coppermine occupied Coppermine River valley as far south as 65 degrees 40′N. A deposit of poorly varved silt and sand deformed by large dropstones suggests that, during its maximum extent, the glacial lake occupied Point Lake basin which was a glacier calving bay. (Au)

B-81612
Felsic domes and flank deposits of the Back River volcanic complex, District of Mackenzie / Lambert, M.B.
(Paper - Canada. Geological Survey, 82- 1A, p. 159-164, figures)
References
ACU

Two of the 23 felsic domes in the Back River cauldron subsidence complex (of Archean age) illustrate a small composite dome, the roots of a dome, and coarse epiclastic deposits derived from the domes. The Crutch Lake dome is a composite body that evolved during two main stages of effusion beginning with the eruption of a rhyolite dome. A dacite dome rose through and largely destroyed the previous dome. Mass wasting produced banks of coarse debris on the flanks of the domes and lahars carried debris for distances of 1500 m off the east side. The rhyolite body at Thlewyco Lake is the root of a dome that rose along the outer ring fracture system and through a succession of greywacke and siltstones. Extensive rhyolite breccias are the products of destruction of this dome and represent dobris flows that travelled for 4500 m into the adjacent sedimentary basin. (Au)

B-81620
Synvolcanic intrusions in the Cameron River volcanic belt, District of Mackenzie / Lambert, M.B.
(Paper - Canada. Geological Survey, 82- 1A, p. 165-167, figures)
References.
ACU

Swarms of amphibolite dykes and sills, that form up to 35 per cent of the Cameron River volcanic belt, intrude the granitic basement but not sediments that are adjacent to or overlie the volcanics. They are an integral part of the volcanic stratigraphy. The dykes mark extensive linear fracture systems, along the margins of a fault bound basin, that were the conduits along which magma rose and fed lavas at the surface. As magma shifted progressively to fractures farther from the edge of the basin, lavas effused at the surface and the volcanic pile spread laterally from east to west. The present volcanic belt reflects the width of the original belt, not its thickness. Regional deformation deformed the belt against the granitic block which bound the basin on its eastern side. (Au)

B-81671
The Narakay volcanic complex : mafic volcanism in the Helikian Hornby Bay Group of Dease Arm, Great Bear Lake : a preliminary report on depositional processes and tectonic significance / Ross, G.M.
(Paper - Canada. Geological Survey, 82- 1A, p 329-340, figures)
References.
ACU

The Narakay Volcanic Complex is a sequence of mafic pyroclastic rocks within shallow marine strata of the Helikian Hornby Bay Group. Depositional environments of the sedimentary rocks range from shallow shelf (above storm wave base) to supratidal and marginal marine. Fluctuations in relative sea level correspond closely with established trends for Hornby Bay Group strata in the eastern part of the basin. An unconformity near the top of the sequence in the Narakay Volcanic Complex involves juxtaposition of volcanic basement rocks of unknown age and Hornby Bay Group rocks, synsedimentary faulting, and deposition of autochtonous paraconglomerate. This unconformity may correlate with the local unconformity found between the Hornby Bay and Dismal Lakes groups. Pyroclastic rocks are composed of tuffs and agglomerates deposited on the flanks of maar-like tuff cones. ... The tuff cones were partly preserved in graben-like structures although most underwent some erosion with dispersal of epiclastic debris by storm surge and run-off. The entire Narakay Volcanic Complex is cut by an east-trending swarm of dykes. The composition of the dyke rock and the pyroclastic fragments is nearly indentical, suggesting that they may have been derived from the same magma source. The dyke orientation implies a north-south extensional regime which corresponds with the north-northwest facing geometry of the Dismal Lakes Platform. The dykes record the period of regional tensile stress which occurred at the end of deposition of the Hornby Bay Group and the beginning of deposition of the Dismal Lakes Group. (Au)

B-81698
Ogilvie Mountains Project, Yukon; Part A : a new regional mapping program / Thompson, R.I. Roots, C.F.
(Paper - Canada. Geological Survey, 82- 1A, p. 403-411, figures)
References.
ACU

The Ogilvie Mountains Project is a long term regional mapping program, intiated in 1981, to provide comprehensive maps accompanied by detailed stratigraphic and structural analyses for Dawson (116 B,C), Larsen Creek (106 D) and Nash Creek (106 C) map areas .... The stratigraphic theme of this report reflects our 1981 effort to establish a stratigraphic framework for the north-central part of the Dawson map area (116 B,C). Special attention was directed toward the description of volcanic assemblages, preparatory to assessing the role of volcanism during the evolution of the region .... (Au)

B-81701
Ogilvie Mountains Project, Yukon; Part B :
Volcanic rocks in north-central Dawson map area / Roots, C.F.
(Paper - Canada. Geological Survey, 82- 1A, p. 411-414, figures, table)
References.
ACU

Volcanic rocks are an integral stratigraphic component of the Dawson map area (NTS 116 B,C) and provide an excellent opportunity to assess the role of volcanism during Late Proterozoic through Early Paleozoic evolution of the region. This is a preliminary account of the stratigraphic and structural setting of several volcanic complexes within the north-central part of the Dawson map area and serves as the framework for more detailed studies that will begin in 1982. ... (Au)

B-81710
Geology of the Fort Smith map area (east half), District of Mackenzie / Bostock, H.H.
(Paper - Canada. Geological Survey, 82- 1A, p. 419-420, figures)
References.
ACU

Geological reconnaissance of the Fort Smith map area (75 D) was completed during the summer of 1981 with mapping of the part between the 110th and 111th meridians. The geology within this area is closely related to that described for the western half of the sheet (Bostock, 1981) and the data described here are presented as an extension of the initial report on the west half of the sheet. (Au)

B-81752
Geology of the Mactung pluton in Niddery Lake map area and some of the plutons in Nahanni map area, Yukon Territory and District of Mackenzie / Anderson, R.G.
(Paper - Canada. Geological Survey, 82- 1A, p. 299-304, figures)
References.
ACU

Two major plutonic suites were distinguished on the basis of lithology, inclusion abundance, structure and intrusive style in the study areas. A megacrystic suite consists of small, composite, inclusive-free, alkali feldspar megacryst- and biotite-bearing granite and quartz monzonite plutons (Mactung, Mount Wilson and Pelly River plutons). The suite without megacrysts consists of a larger, homogeneous, hornblende- and biotite-bearing granodiorite and quartz monzodiorite pluton with relatively abundant inclusions (South Nahanni River pluton). Few characteristics distinguish members of the megacrystic suite associated with tungsten-bearing skarns from those devoid of tungsten. (Au)

B-83437
Controls of lead-zinc mineralization, Pine Point district, Northwest Territories, Canada / Kyle, J.R.
(Transactions - Society of Petroleum Engineers of AIME, v.268, 1980, p.1617-1626, figures)
References.
ACU

Lead-zinc ore bodies in the upper part of the Pine Point carbonate barrier complex are localized in paleo-solution structures that developed as the result of post-middle Givetian subaerial exposure. Detritus-filled dolines host prismatic ore bodies, and macropores and stratabound permeable zones contain tabular ore bodies. Sulfides are concentrated in these transgressive paleosolution structures that acted as natural bypasses between aquifers and loci for mixing of fluids of different character. Complex ore textures indicate rapid early sulfide precipitation followed by slower sulfide growth. Evidence for both sulfide-carbonate equilibrium and disequilibrium conditions suggest fluctuations in ore fluid composition, perhaps related to periodic supply of reduced sulfur. District and ore body metal distribution patterns may reflect the nature and movement of mineralizing fluids. (Au)

B-85103
Age and stratigraphic-tectonic significance of Proterozoic diabase sheets, Mackenzie Mountains, northwestern Canada / Armstrong, R.L. Eisbacher, G.H. Evans, P.D.
(Canadian journal of earth sciences, v. 19, no. 2, Feb. 1982, p. 316-323, figures, tables)
Appendix.
References.
ACU

Diabase dikes and sills were intruded during a Late Proterozoic phase of extensional tectonics in the northern Canadian Cordillera. ... The emplacement of the diabase sills and dikes may be related to either of two volcanic events in the region, one documented, the other inferred. In either case, emplacement of the diabase at approximately 770 Ma is close to the boundary between the Mackenzie Mountains Supergroup and the overlying Windermere Supergroup, precedes a regional glaciation (Shezal tillite), and reflects a strong accentuation of the west-facing Cordilleran miogeocline. (Au)

B-85111
Rb-Sr isochron ages, magmatic 87Sr/86Sr initial ratios, and oxygen isotope geochemistry of the Proterozoic lava flows and intrusions of the east arm of Great Slave Lake, Northwest Territories, Canada / Goff, S.P. Baadsgaard, H. Muehlenbachs, K. Scarfe, C.M.
(Canadian journal of earth sciences, v. 19, no. 2, Feb. 1982, p. 343-356, figures, tables)
Appendix.
References.
ACU

Two Rb-Sr isochrons from the oldest (Wilson Island Group) and one of the youngest (Pearson Formation) Proterozoic volcanic units in the East Arm of Great Slave Lake give dates and initial ratios of 1810 +- 19 Ma, 0.7051 +- 0.0008, and 1890 +- 30 Ma, 0.7089 +- 0.0004, respectively. These dates restrict the Great Slave Supergroup entirely to the Aphebian. The Pearson Formation date is interpreted as magmatic, but it is considered to be rapidly followed by a significant metamorphic and tectonic event within the area. Both the above suites and the volcanic formations of intermediate age have undergone metamorphism up to and including epidote-amphibolite facies. ... The estimated initial 87Sr/86Sr ratios of the magmas, both from clinopyroxene separates and isochrons, indicate a mantle origin for early tholeiitic mid-Aphebian diabase (0.7016-0.7017), Union Island Group diabase (0.7021-0.7030), and Sosan Group alkali volcanics (0.7017). The later Jackson gabbro (0.7050-0.7054) and especially the Pearson Formation tholeiitic basalt (0.7080) both show the effects of significant crustal contamination. The evidence for the Wilson Island Group is less decisive but appears to indicate a mantle origin. (Au)

B-85332
Cretaceous and Tertiary stratigraphy and paleogeography, northern interior plains, District of Mackenzie / Yorath, C.J. Cook, D.G.
[Ottawa] : Geological Survey of Canada, 1981.

76p. : ill. (6 folded in portfolio), figures, map, tables ; 28cm.
(Memoir - Canada. Geological Survey, 398)
Appendices.
References.
ACU

This report describes the Cretaceous and Tertiary stratigraphy and paleogeography of a large area in northwestern District of Mackenzie .... This report is based primarily on studies of surface exposures. No detailed examination and description of subsurface samples has been undertaken, but the report, nonetheless, incorporates subsurface information from published and unpublished sources which are acknowledged at appropriate places in the text to follow. The report modifies stratigraphic relationships, nomenclature and areal distributions of rock units illustrated previously by Yorath (GSC Open File Report 336, 1976). (Au)

B-87912
Magnetic reversal history of Pleistocene sediments at Old Crow, northwestern Yukon Territory / Pearce, G.W. Westgate, J.A. Robertson, S.
(Canadian journal of earth sciences, v. 19, no. 5, May 1982, p. 919-929, figures, tables)
References.
ACU

The banks of the Porcupine River near Old Crow in the unglaciated part of the northern Yukon consist of about 55 m of interbedded fluvial and lacustrine gravels, sands, silts, and clays. This sequence was sampled closely for palaeomagnetic analysis and the sediments were found to possess a natural remanent magnetization (NRM) that is stable in direction with mean destructive fields of 200-300 Oe (16-24 kA/m). Therefore, good palaeomagnetic data can be obtained from sediments that have been subjected to permafrost conditions, although some samples show disturbance of NRM directions by cryoturbation. ... Sedimentological, palaeobotanical, and palaeomagnetic data all support the presence of a major unconformity in the middle portion of the sedimentary sequence. This unconformity lies at the top of the transition that closes the reversed episode so that the sediments below it are likely older than 700,000 years. These results demonstrate that palaeomagnetic studies on the sedimentary sequences exposed in the many isolated sites within the Old Crow region should greatly facilitate their correlation and indirect dating, effecting thereby an improved understanding of the recent geological history of this anthropologically important area. (Au)

B-87963
The late Proterozoic Rapitan Glaciation in the northern Cordillera / Yeo, G.M.
(Proceedings - Symposium on Proterozoic Basins of Canada, Halifax, May 1980 / Edited by F.H.A. Campbell. Canada. Geological Survey. Paper, 81-10, p. 25-46, figures)
References.
ACU

The Rapitan Group comprises a sequence of marine, glaciomarine, and possible glacial sediments outcropping in the Mackenzie and Wernecke mountains. ... The Rapitan Group lies not far below the Precambrian-Cambrian boundary and overlies rocks judged to be about 0.8 Ga old. Except locally, the basal contact is distinctly unconformable. This unconformity marks the last major faulting event before the Paleozoic Era. An early, local(?), glacial advance (Mount Berg) was separated from a later one (Shezal) by an interstadial period (Sayunei). On nearly every continent late Proterozoic glacial and glacial marine sequences, commonly bearing iron formations of hydrothermal origin, were deposited following major faulting episodes. This suggests that global(?) glaciation(s) followed widespread continental breakup. The development of new seaways in combination with extensive continental uplift resulted in new global circulatory patterns and weather systems. Glaciation in the late Proterozoic was the likely consequence of these factors. (Au)

B-87971
Stratigraphy and sedimentology of the upper Proterozoic Little Dal Group, Mackenzie Mountains, Northwest Territories / Aitken, J.D.
(Proceedings - Symposium on Proterozoic Basins of Canada, Halifax, May 1980 / Edited by F.H.A. Campbell. Canada. Geological Survey. Paper, 81-10, p. 47-71, ill., figures)
References.
ACU

The little Dal Group ... consisting mainly of non-clastic strata, accumulated uninterruptedly in an epicratonic setting. Depositional strike follows the concave-southwestward tectonic arc of Mackenzie Mountains. Southwestward thickening is demonstrable for most formations. Early in the history of the group, facies differentiation was pronounced, between a high-energy carbonate platform and a basin (epicratonic), with the facies boundary cutting across the long-term isopach trend. Once depositional relief was smoothed by sedimentation, it did not recur to any marked degree. ... Refinement of Little Dal stratigraphy permits delineation of an unconformity within strata formerly assigned to the group, here recognized as the base of the overlying "copper cycle". (Au)

B-87980
Correlation of upper Proterozoic strata in the Cordillera : paleomagnetism of the Tsezotene sills and the Little Dal lavas / Morris, W.A. Park, J.K.
(Contribution - Canada. Earth Physics Branch, no. 937)
(Proceedings - Symposium on Proterozoic Basins of Canada, Halifax, May 1980 / Edited by F.H.A. Campbell. Canada. Geological Survey. Paper, 81-10, p. 73-78, figures)
References.
ACU

Two possible correlations have been suggested between the Proterozoic sequences of the Mackenzie and Wernecke mountains in the northern Cordilla of Canada. Crucial to these correlations is the possible existence of an unconformity at some point immediately above, or near the top of, the Little Dal Group in the Mackenzie Mountains Supergroup. Paleomagnetic results from the Little Dal Group sediments, the overlying Little Dal lavas, and diabase sills in the older Tsezotene Formation suggest that there is a major discontinuity at some point below the lavas. ... (Au)

B-87998
Autopsy of Athapuscow Aulacogen : a failed arm affected by three collisions / Hoffman, P.F.
(Proceedings - Symposium on Proterozoic Basins of Canada, Halifax, May 1980 / Edited by F.H.A. Campbell. Canada. Geological Survey. Paper, 81-10, p. 97-102)
Summary only.
ACU

Athapuscow Aulacogen is a deformed east-northeast-trending basin, 270 km long by at most 80 km wide, of little-metamorphosed early Proterozoic sedimentary and magmatic rocks exposed in and around the East Arm of Great Slave Lake, Northwest Territories. ...

the stratigraphy of the aulacogen consists of two relatively conformable sequences separated by a regional angular unconformity. The younger sequence ... (Et-then Group) is virtually unmetamorphosed and consists of alluvial fanglomerate, locally with basalt flows, and pebbly fluvial sandstone. The older sequence (Great Slave Supergroup) is subgreenschist in grade and records a grand transgressive-regressive cycle .... Athapuscow Aulacogen is an outstanding example of a multistage intracratonic basin, controlled at virtually every stage by events occurring at nearby continental margins. When compared with Phanerozoic basins, the following very tentative and qualitative differences seem to emerge: 1. Thermally driven subsidence ... seems less; 2. Tectonically driven subsidence ... seems more; and 3. Collisional cracking of the subducting plate to permit tholeiitic magmatism in the foreland basin ... is more common. These conclusions are consistent with the idea of a somewhat hotter mantle and consequently thinner lithosphere in the early Proterozoic .... (Au)

B-88005
Evolution of the early Proterozoic Kilohigak Basin, Bathurst Inlet - Victoria Island, Northwest Territories / Campbell, F.H.A. Cecile, M.P.
(Proceedings - Symposium on Proterozoic Basins of Canada, Halifax, May 1980 / Edited by F.H.A. Campbell. Canada. Geological Survey. Paper, 81-10, p. 103-131, ill., figures)
References.
ACU

The Kilohigok Basin is a large intracratonic feature covering more than 7,000 square km and hosting up to 7,000 m of Goulburn Group strata. The Kilohigok Basin is correlative in age with the Coronation Supergroup of the Wopmay Orogen and Great Slave Supergroup of the Athapuscow Aulacogen. ... Initial shallow marine to nonmarine sedimentation, centred about the Axial Zone, was accompanied by development of extensive stromatolite reef complexes on paleotopographic highs. Following a period of minor(?) uplift and erosion, increased uplift in the source areas to the south and east supplied sands and gravels to extensive braided rivers which spread these clastics down the Axial Zone and across the flanking platforms. Periodic shallow marine deposition on the floodplain was overwhelmed by renewed fluvial sedimentation during this phase of accumulation, which gradually decreased as the basin and source areas stabilized. ... (Au)

B-88013
Early Proterozoic LaBine Group of Wopmay Orogen : remnant of a continental volcanic arc developed during oblique convergence / Hildebrand, R.S.
(Proceedings - Symposium on Proterozoic Basins of Canada, Halifax, May 1980 / Edited by F.H.A. Campbell. Canada. Geological Survey. Paper, 81-10, p. 133-156, ill., figures)
References.
ACU

The ... LaBine Group outcrops along the western margin of Wopmay orogen at Great Bear Lake and rests on a deformed and metamorphosed ... sialic basement complex. It is overlain by rocks of the mainly rhyodacitic Sloan Group. Syn- to post-volcanic plutons of the Great Bear batholith intrude both groups. From Echo Bay northward to Hornby Bay the oldest rocks of the LaBine Group are ... interpreted to be the remains of a large stratovolcanoes. Overlying and in part interfingering with the stratovolcanoes, are seven major ash-flow tuff sheets ... it is concluded that the LaBine Group represents an early Proterozoic volcanic arc developed upon continental crust. Preserved stratovolcanoes and other high-level volcanic strata indicate that the LaBine Group was erupted into a basin which was subsiding concomitant with eruptions. The basin was probably generated in a wrench zone related to oblique convergence. ... (Au)

B-88021
Tectonism and depositional history of the Helikian Hornby Bay and Dismal Lakes groups, District of Mackenzie / Kerans, C. Ross, G.M. Donaldson, J.A. Geldsetzer, H.J.
(Proceedings - Symposium on Proterozoic Basins of Canada, Halifax, May 1980 / Edited by F.H.A. Campbell. Canada. Geological Survey. Paper, 81-10, p. 157-182, figures)
References.
ACU

The Hornby Bay and Dismal Lakes groups ... are a middle Proterozoic succession of terrestrial and shallow marine sedimentary rocks deposited over the northern margin of the early Proterozoic Wopmay Orogen. Lithologic sequences and facies patterns within both groups reflect the response of sedimentation to changes in the loci of uplift and/or subsidence, and syndepositional normal fault activity. The two groups represent two terrestrial siliciclastic to marine carbonate cycles of deposition, each in excess of 1.5 km thick ... Comparison of Dismal Lakes Group with the Ellice, Parry Bay, and Kanuyak formations of the Elu Basin reveals a close lithologic and tectono-depositional correlation indicating that both areas represent remnants of a more extensive Helikian shelf. (Au)

B-88030
Paleomagnetic results from the lower Proterozoic rocks of Great Slave Lake and Bathurst Inlet areas, Northwest Territories / Evans, M.E. Hoye, G.S.
(Proceedings - Symposium on Proterozoic Basins of Canada, Halifax, May 1980 / Edited by F.H.A. Campbell. Canada. Geological Survey. Paper, 81-10, p. 191-202, figures)
References.
ACU

Paleomagnetic results are reported from some 300 redbed horizons in the Athapuscow aulacogen and Kilohigok Basin .... Magnetizations are commonly multiphased, requiring the recognition and removal of recent and ancient overprints before original primary remanences are revealed. ... the poles deduced from these formations form a group off the west coast of South America ... the Lower Coronation Pole ... indicates that for much of its sedimentation history the Coronation Geosyncline occupied tropical latitudes ... which is compatible with the abundance of stromatolites and the occurrence of evaporites. In addition to this Lower Coronation Pole, there is a widespread overprint, thought to be associated with uplift and cooling in the Coronation Geosyncline ... The pole obtained from the Western River Formation ... lies off the west coast of Africa, some 80 degrees from the Lower Coronation Pole. One ... interpretation of this discrepancy ... is ... that it ... represents a time gap of perhaps as much as 200 Ma. The results from the Stark and Tochatwi formations are aberrant, possibly because of a local tectonic rotation. This suggestion has been tested by collecting new material from the Stark Formation in an area thought to be undisturbed. ... Since the samples were collected in ordered stratigraphic sequences it has proved possible to delineate geomagnetic polarity zones. The magnetostratigraphy of these ancient sedimentary basins is thus beginning to emerge .... (Au)

B-88048
The Amundsen Embayment, Northwest Territories; relevance to the upper Proterozoic evolution of North America / Young, G.M.
(Proceedings - Symposium on Proterozoic Basins of Canada, Halifax, May 1980 / Edited by F.H.A. Campbell. Canada. Geological Survey. Paper, 81-10, p. 203-218, ill., figures)
References.
ACU

The Amundsen Embayment comprises late Proterozoic ... sedimentary and volcanic rocks of the Shaler Group on Victoria and Banks islands, and correlatives in the Brock Inlier and Coppermine area. On Victoria Island the Shaler Group is disconformably overlain by mafic volcanic rocks of the Natkusiak Formation. The sedimentary rocks include limestones and dolostones .... The Schaler Group records an initial phase of marine transgression, followed by a succession of marine-to-fluvio-deltaic cycles. A thick carbonate succession was then deposited, under shallow marine conditions. Preservation of two major evaporitic units in the upper part of the Shaler Group indicates basin restriction. An easterly thinning wedge of terrigenous clastics terminates deposition of the Shaler Group. ... Close lithostratigraphic similarity with the Mackenzie Mountains supergroup in the northern part of the Canadian Cordillera suggests that the two regions were formerly parts of one extensive sea. Concentration of evaporites at two stratigraphic levels in both areas indicates deposition in low paleolatitudes .... These evaporites suggest that the depositional basin was two-sided. ... (Au)

B-88102
Stratigraphy of the Akaitcho Group and the development of an early Proterozoic continental margin, Wopmay Orogen, Northwest Territories / Easton, R.M.
(Proceedings - Symposium on Proterozoic Basins of Canada, Halifax, May 1980 / Edited by F.H.A. Campbell. Canada. Geological Survey. Paper, 81-10, p. 79-95, ill., figures)
References.
ACU

The early Proterozoic Akaitcho Group consists of 8 to 10 km of metasedimentary and metavolcanic rocks located in the central metamorphic zone of the Wopmay Orogen (Bear Province). ... Two types of REE patterns are present in the Akaitcho Group basalts: a sloping pattern ... and a flat REE pattern .... The Akaitcho Group records a temporal evolution in basalt geochemistry from older evolved continental tholeiites, through continental tholeiites, to younger, ocean tholeiites. ... Bimodal volcanism ... in association with continent-derived sediments, the temporal evolution of the basalt geochemistry, and the similarity of the Akaitcho Group to recent rift sequences indicates that the Akaitcho Group was deposited in a rift. The stratigraphic position of the Akaitcho Group beneath the lower Epworth Group preserves products of the initial rifting in the Wopmay Orogen, and that ocean crust probably did exist west of the Slave Craton in the early Proterozoic. (Au)

B-88633
Geology and biostratigraphy of the Dome Gulf et al. Ukalerk C-50 well, Beaufort Sea / McNeil, D.H. Ioannides, N.S. Dixon, J
[Ottawa : Geological Survey of Canada], 1982.
17 p., [4] p. of plates. : ill., figures ; 28 cm.
(Paper - Canada. Geological Survey, 80- 32)
References.
ACU

The Dome Gulf et al. Ukalerk C-50 well was drilled in 1977, 55 km offshore in the Beaufort Sea, in 27.7 m of water to a total depth of 2304.7 m. Gas was recovered from 2011.7-2017.8 m at a maximum rate of 476,473 cubic m/day. The Tertiary section contains a major unconformity at 1571.5 m, identified from physical and biostratigraphic characteristics. ... The unconformity is regional and has been recognized in a number of other Beaufort Sea wells. It coincides with major changes in palynomorph and foraminiferal assemblages that record a significant cooling trend across the unconformity. Dating of the event that produced the unconformity is still tenuous but the most likely age is Late Miocene or Early Pliocene. (Au)

B-88692
Petrochemistry of the Blachford Lake complex near Yellowknife, Northwest Territories / Davidson, A.
(Proceedings - Uranium in Granites Workshop, Ottawa, 25-26 November, 1980 / Edited by Y.T. Maurice. Canada. Geological Survey. Paper, 81-23, p. 71-79, figures)
References.
ACU

Field studies in 1971 and 1978 outlined a relatively large, subcircular, high-level plutonic complex at the south edge of the Slave Province. Radio-isotope analyses give ages of the order of 2150 Ma. ... This study documents progressive changes in major and minor element concentrations in the intrusive rocks. ... (Au)

B-88706
Comparative petrochemistry of two cogenetic monzonitic laccoliths and genesis of associated uraniferous actinolite-apatite-magnetite veins, east arm of Great Slave Lake, District of Mackenzie / Gandhi, S.S. Prasad, N.
(Proceedings - Uranium in Granites Workshop, Ottawa, 25-26 November, 1980 / Edited by Y.T. Maurice. Canada. Geological Survey. Paper, 81-23, p. 81-90, figures)
References.
ACU

Two cogenetic monzonitic laccoliths, one hosting uraniferous actinolite-apatite-magnetite veins, were sampled for a comparative petrochemical study as an aid to understanding the genesis of the veins and to provide guides for exploration of other similar intrusions in the east arm of Great Slave Lake. The results reveal that the two bodies are very similar in chemical and mineralogical composition. They show a small compositional range and a calc-alkaline differentiation trend. They are subalkaline in character but locally show effects of alkali metasomatism. ... (Au)

B-90611
34S and 18O abundances differentiate Upper Cambrian and Lower Devonian gypsum-bearing units, District of Mackenzie, N.W.T. - an update / van Everdingen, R.O. Shakur, M.A. Krouse, H.R.
(Canadian journal of earth sciences, v. 19, no. 6, June 1982, p.1246-1254, figures, tables)
References.
ACU

Previous sulfur isotope data for the Lower Devonian Bear Rock Formation and the Upper Cambrian Saline River Formation in the District of Mackenzie, N.W.T. have been supplemented by additional sulfur isotope analyses as well as delta 18O determinations on sulfates from outcrops, drill cuttings, and cores. Whereas the mean delta 34S value for the Bear Rock Formation is lower than that of the Saline River Formation (+ 17.8 +- 1.8 per mill. versus

+ 29.7 +- 2.2 per mill.), the opposite trend was found for the mean delta 180 values (+ 15.6 +- 1.0 per mill. versus 13.0 +- 1.5 per mill.). The new data confirm that, for all samples analysed, there is no overlap between delta 34S values for the two formations, while the delta 180 data display some overlap. The earlier delta 34S data for samples from an evaporitic section on the northeast side of the Norman Range (originally mapped as consisting entirely of Saline River Formation) indicated the presence of a thrust fault in the section, with Saline River strata overlying Bear Rock strata. The Delta 180 data for those samples, which fortuitously fall into two non-overlapping groups, confirm the earlier conclusions based on the delta 34S data and allow us to define the position of the thrust-fault contact somewhat more closely. (Au)

B-90646

The Ordovician - Silurian boundary, northern Canadian Cordillera : graptolite and conodont correlation / Lenz, A.C. McCracken, A.D.
(Canadian journal of earth sciences, v. 19, no. 6, June 1982, p.1308-1322, figures, 2 plates)
Appendix.
ACU

The Upper Ordovician graptolite facies of the northern Canadian Cordillera is divided into two biostratigraphic units, the Dicellograptus ornatus Zone and the Pacificograptus pacificus Zone. Interbeded limestone yielded conodont Fauna 12. The uppermost Ordovician equivalents to the graptolite Climacograptus extraordinarius Zone and conodont Fauna 13 are absent, signifying a widespread stratigraphic hiatus probably attributable to the effects of glacially induced regression. The lowest Silurian graptolite fauna, of the Glyptograptus persculptus Zone, is tentatively identified in some sections, although it is absent in others. Conodonts from the zone, although present, are not diagnostic. Thicknesses of the lowest Silurian G. persculptus Zone sediments are anomalously high in comparison with average thicknesses of the zone elsewhere in the world. (Au)

B-91782

Neogene dinoflagellate cysts from the Hunt Dome Kopanoar M-13 well, Beaufort Sea, Canada / Bujak, J.P. Davies, E.H.
(Bulletin of Canadian petroleum geology, v. 29, no. 3, Sept. 1981, p. 420-425, figures)
References.
ACU

Reworked palynomorphs dominate the Plio-Pleistocene section of the Hunt Dome Kopanoar M-13 well, Beaufort Sea. Epifluorescence is a valuable technique for distinguishing the indigenous population, and reveals marine and freshwater dinoflagellate cysts that would otherwise be inconspicuous. ... (Au)

B-92886

Analysis of the multicomponent magnetization of the Little Dal Group, Mackenzie Mountains, Northwest Territories, Canada / Park, J.K.
(Journal of geophysical research, v. 86, no. B 6, June 10, 1981, p.5134-5146, figures, tables)
References.
ACU

A paleomagnetic study on 14 red limestone sites of the Helikian Little Dal Group, 'basinal . sequence' (Mackenzie Mountains, Northwest Territories, Canada) resolved five magnetizations using thermal and alternating field treatment with vector analysis. One magnetization (C) with low unblocking temperatures ... is probably a goethite weathering component of Cretaceous age. It gives a direction at 291 degrees, + 75 degrees ... and a pole at 60 degrees N, 170 degrees E. Two other closely related magnetizations (A, detrital?) probably carried by magnetite ... and hematite .. respectively, yield directions of 265 degrees, -29 degrees ... and 264 degrees, -26 degrees ... with a combined pole at 16 degrees S, 141 degrees E .... The two remaining magnetizations ... -a normal ... and a reverse ... component recognized in most specimens-have a combined direction of 273 degrees, -9 degrees ... and a pole at 3 degrees S, 138 degrees E .... C and A are pre-folding (before Paleocene or pre-late Cretaceous) with A suggested to be primary. A and B lie close to a recently proposed polar track for the late Helikian and Hadrynian and evidence suggests a magnetization age for A of 900 to 950 Ma. (Au)

B-92975

A Rb-Sr study of a differentiated quartz monzonite intrusion at Rainy Lake, Camsell River area, District of Mackenzie / Gandhi, S.S. Loveridge, W.D.
(Paper - Canada. Geological Survey, 82- 1C, p. 147-153, figures, tables)
References.
ACU

A sill-like intrusion at Rainy Lake, Camsell River area, District of Mackenzie, approximately 10 km long and 2 km thick, is differentiated from monzodiorite in the lower part to quartz syenite near the roof. Of seven samples analyzed, four from the lower part and one from the upper part have yielded a Rb-Sr isochron of age 1956 +- 82 Ma, initial 87Sr/86Sr 0.7019 +- 0.0010 and MSWD of 1.0. (Au)

B-92983

A Rb-Sr study of the Et-Then Group basalts, Great Slave Lake, District of Mackenzie / Gandhi, S.S. Loveridge, W.D.
(Paper - Canada. Geological Survey, 82- 1C, p. 155-160, figures, table)
References.
ACU

A Rb-Sr study of 8 drill core samples of basaltic flows, intercalated with gently to moderately dipping conglomerate units of the Et-Then Group, has yielded an errorchron of age 1969 +- 82 Ma, initial 87/Sr/86Sr of 0.7046 +- 0.0006 and MSWD 3.7. The samples are from a 450 m section of the virtually unmetamorphosed Murky Formation which forms the lower part of the group. The age obtained is greater than published dates for some Aphebian rocks known to be older then the Et-Then Group from their field relations. (Au)

B-94536

The geochronology of uranium deposits in the Great Bear batholith, Northwest Territories / Miller, R.G.
(Canadian journal of earth sciences, v. 19, no. 7, July 1982, p.1428-1448, figures, tables)
References.
ACU

The oldest uranium mineralization found in the Great Bear batholith during this study may be hydrothermal pitchblende-hematite veins at Hottah Lake. Their apparent age of 2058 +- 34 Ma can also be explained by the contamination of deposits only 440 +- 57 Ma old, which is the age of pitchblende veins nearby. Numerous pendants of metamorphosed, uraninite-bearing "black sand" placers in a north-trending belt west of the Wopmay Fault are 1860 +- 20 Ma old, the age of the granites that intrude them. Mineralization at Echo Bay is from 1500 +- 10 to 1424 +- 29 Ma old, and extends up to 30 km north and 40 km south of Echo Bay. The JD claims contain small quartz vein deposits data at 535 +- 164 and 1092 +- 115 Ma. At Mountain Lake, pitchblende in Helikian sandstones overlying the batholith is 1076 +- 96 Ma old. Polymetallic veinlets at Mazenod Lake are 457 +- 26 Ma old. Pitchblende in a giant quartz vein at the Rayrock mine is 511 +- 66 Ma old. Small pitchblende veins east of the batholith along the Coppermine River are between 400 and 660 Ma old. (Au)

B-99368
Gravity measurements in the Beaufort Sea area / Plouff, D.
(Arctic, v. 17, no. 3, Sept. 1964, p. 151-161, figures, tables)
ACU

B-105562
Early Cambrian problematic fossils near June Lake, Mackenzie Mountains, N.W.T. / Hofmann, H.J.
(Canadian journal of earth sciences, v. 20, no. 10, Oct. 1983, p.1513-1520, figures)
References.
ACU

Compressed cylindrical remains of probable trace fossil affinities are described under the taxon Palaeophycus ferrovittatus n. sp. The structures are preserved as ornamented, reddish brown, rectilinear to curvilinear ribbons of iron oxide several centimetres long, several millimetres wide, less than 1 mm thick, and surrounded by an argillaceous envelope. They occur along bedding planes in greyish olive weathering mudstone interbedded with glauconitic quartz sandstone in the Backbone Ranges Formation straddling the Precambrian-Cambrian boundary. They are associated with other fossils similarly preserved by iron oxides, including cf. "Helminthoidichnites? meeki" Walcott and Planolites montanus Richter. (Au)

B-106186
A U-Pb study of zircon from granitic basement beneath the Yellowknife Supergroup, Point Lake, District of Mackenzie / Henderson, J.B Loveridge, W.D. Sullivan, R.W.
(Paper - Canada. Geological Survey, 82- 1C, p. 173-178, figures, table)
References.
ACU

At Point Lake, District of Mackenzie, granitic basement at some distance from the unconformity with the overlying approximately 2670 Ma Yellowknife Supergroup has been dated by T.E. Krogh using the U-Pb method on zircon, at 3152 Ma. This report presents results of a U-Pb study on zircon from the same granite but collected at a locality only a few hundred metres from the unconformity. These results differ from those of Krogh in that a very large common lead component of Archean age was found in the zircon as well as an indication that the zircon had undergone an additional lead loss/uranium gain event. We interpret the combined results as indicating emplacement of the granite at 3152 Ma followed by zircon radiogenic lead loss/uranium gain together with gain of common lead near the unconformity at the time of erosional unroofing of the granite (prior to 2670 Ma). The last event affecting the U-Pb zircon systematics was lead loss at about 166 Ma. These results confirm that the granite is basement and not an unroofed synvolcanic pluton. (Au)

B-107093
Copper, zinc, cadmium, lead, chromium, mercury and iron in sediment, seawater and zoobenthos at selected Dome drill sites in the Beaufort Sea, summer 1977 / Seakem Oceanography Ltd. Thomas, D.J. Dome Petroleum Limited [Sponsor].
Sidney, B.C. : Seakem Oceanography Ltd., 1978.
2 microfiches : figures ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWE03)
Appendices.
References.
ACU

Replicate sediment and seawater samples were taken from July 1977 to September 1977 at ten drill sites in the Beaufort Sea for trace metal analysis. Baseline values were obtained for copper, zinc, cadmium, lead, chromium, mercury and iron in sediment, seawater and zoobethos. No sites showed anomalously high values. Furthermore, no values were obtained that could be considered significantly different from these of unpolluted seawater, sediments or benthos in other parts of the oceans. The analysis of variance on the seawater and sediment data showed that while the trace element composition of seawater at all stations could be considered the same, only at Kugluiik A75 could the sediment be considered homogeneous with respect to trace elements at the 5% significance level. Sediments for all sites showed very similar 0.5 N HCL extractable trace metal fractions although element to element extractabilities varied widely. Diversity and abundance of zoobenthos were determined for each site and were similar to previously published values. (Au)

B-107395
Investigation of the Archaean crust by single-grain dating of detrital zircon : a graywache of the Slave Province, Canada / Scharer, U. Allegre, C.J.
(Canadian journal of earth sciences, v. 19, no. 10, Oct. 1982, p.1910-1918, figures, table)
References.
ACU

U-Pb dating of single zircon grains from a graywache of the Point Lake area of the Archaean Slave Structural Province in Canada indicates that this sediment is derived from two sources: (1) the ancient shield (parts of which are at least 3100 Ma old), which is the basement of the Slave Province supracrustal rocks; and (2) younger rocks (about 2700 Ma old). This implies the creation of large amounts of acidic to intermediate rocks during the 2700 Ma event. It also indicates that magma generation and intracontinental sedimentary basin formation and deepening are strongly related.. (Au)

B-107425
Paleomagnetism of the Little Dal lavas, Mackenzie Mountains, Northwest Territories, Canada / Morris, W.A. Aitken, J.D.
(Canadian journal of earth sciences, v. 19, no. 10, Oct. 1982, p.2020-2027, figures, table)
References.
ACU

The Proterozoic stratigraphic column of the Mackenzie Mountains is dominated by two main successions, the platformal "Mackenzie Mountains Supergroup" beneath, and the Windermere-equivalent Rapitan Group and younger strata, of rift-depression and slope origin, above. ... These two main successions are locally separated by an unconformity-bounded succession, the "copper cycle." An important question is whether the copper cycle is more closely related in time and in origin to the older or the younger main succession. Determination of the paleomagnetism of the basaltic lavas locally preserved at the top of the Little Dal Group (top of the Mackenzie Mountains Supergroup) and comparison of their remanence directions with those published for other rocks bearing on the question were thought to be one way of shedding light on this question. Accordingly, paleomagnetic investigation of 10 sites in the Keele River area and six sites in the Thundercloud Range area was undertaken to obtain the remanence direction related to the initial extrusion of the lavas. ... Of the three magnetizations found, LD-L(D = 304 degrees, I = 20 degrees, alpha 95 = 7 degrees) is assumed to represent the magnetization acquired on crystallization of the lavas. If this assumption is correct, the significant difference from the direction LD-A(D = 265 degrees, I = 26 degrees, alpha 95 = 4 degrees)) reported elsewhere for strata low in the Little Dal Group suggests either that the lavas significantly postdate the group or that significant movement of the North American plate occurred during accumulation of the 2 km or so of platformal strata between the lower Little Dal beds and the lavas. The new results presented here also admit the conclusion that the Little Dal lavas do not represent the same igneous events as diabase intrusions dated at about 770 Ma that cut the lower Little Dal. (Au)

B-107433
Ordovician Pterygometopidae (Trilobita) of North America / Ludvigsen, R. Chatterton, B.D.E.
(Canadian journal of earth sciences, v. 19, no. 11, Nov. 1982, p.2179-2206, figures, plates)
References.
ACU

In this paper, we propose a four-fold subfamilial division of the Pterygometopidae, review and provide diagnoses and illustrations of established ptergometopid genera in Ordovician rocks of North America, and propose three new genera of eomonorachine trilobites. ... In dating eastern North American pterygometopids we have relied heavily on the regional biostratigraphic framework of Sweet and Bergstrom (1976). Many of the pterygometopids treated in this work came from the lower Whittaker Formation of the western District of Mackenzie. Ludvigsen (1979c) presented a trilobite zonation of this interval from exposures in the Whittaker and Funeral Ranges of the southern Mackenzie Mountains ... [This article discusses revisions which] remove some previous age anomalies of a few trilobites on the W. Planatus zone. ... (Au)

B-107603
The lower Paleozoic Misty Creek Embayment, Selwyn Basin, Yukon and Northwest Territories / Cecile, M.P.
Ottawa : Geological Survey of Canada, 1982.
78 p. : figures, tables ; 28 cm + 1 folded figure in pocket.
(Bulletin - Canada. Geological Survey, 335)
ISBN 0-660-11188-8
Appendices.
References.
Contents: Appendix II: Paleontology / W.H. Fritz, B.S. Norford and R.S. Tipnis.
ACU

The Misty Creek Embayment, a 100 x 150 km, northwest-trending, rectangular, early Paleozoic basin, is surrounded on three sides by the Upper Cambrain-Lower Ordovician Franklin Mountain Formation, and the Upper Ordovician-Lower Silurian Mount Kindle Formation, both platform dolostones. These dolostone units define two distinctly different positions of the embayment, the Mount Kindle indicating embayment boundaries about 30 km west of those defined by the Franklin Mountain Formation. These dolostones are thick bedded, recrystallized, and locally preserve shallow water features, such as oolites, birdseye texture, mudcracks, and bioturbation. To the south the embayment opens into the Selwyn Basin across the Niddery basin high. ... The embayment is interpreted as a submerged, fault-bounded basin on the basis of geometry, linear facies belts, and alkalic volcanism. Several bedded barite occurrences are noted in Hess River, Duo Lake and Cloudy Formations; and phosphorite was found at two locations in the Hess River Formation. Shale units show base metal anomalies and are recommended exploration targets. The embayment is comparable in many aspects to the correlative Richardson Trough. Facies relationships and basin geometry of the embayment therefore may be useful for subsurface exploration adjacent to the trough. (Au)

B-108162
A study of the benthos and sediment chemistry at Tarsiut N-44 artificial island and south Tarsiut borrow area, 1981 / Arctic Laboratories Limited. Thomas, D.J. Heath, W.A. Koleba, J.M. Perry, B.M. Ethier, A.G. Dome Petroleum Limited [Sponsor].
Sidney, B.C. : Arctic Laboratories Ltd., 1982.
3 microfiches : figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWE24)
Appendices
References
ACU

Sampling of the sea bottom around the East Tarsiut N-44 artificial island and the South Tarsiut borrow area was performed in September 1981 in order to determine the distribution and community associations of the benthic invertebrates and certain chemical and physical properties of the sediments and bottom water. Analyses of sediment were made for particle size, total organic carbon, aliphatic and polyaromatic hydrocarbons, hexane extractable compounds and (selected) trace metals. Salinity of bottom water was also measured. ... Biomass and population densities were generally greater at stations located 500 m and 3,000 m from the artificial island than at the stations located 50 m from the island. ... A qualitative analysis by the Zurich-Montpellier method distinguished three benthic associations with differing affinities for the two station clusters .... One group of species was commonly found at the island site but occurred only rarely at the borrow site stations. A second group was rare at the island site but common at the borrow site. A third group comprised species found frequently in samples from both station clusters. Early recolonization of the subsurface plateau of sand around the caissons was evident from the presence of certain species of bivalve molluscs and polychaete worms. ... At the artificial island site, the trace metals, hydrocarbons, total organic carbon and 'hexane extractable compounds' content of sediments were lowest at the stations 50 m from the island and highest at stations 500 m and 3000 m away. ... Low concentrations of petrongenic hydrocarbons could be detected in the sediments around the island construction site. These are probably naturally-occurring river-borne hydrocarbons. At the borrow site, two types of sediments could also be distinguished - one group course grained and lowest in metal content; the other finer grained and highest in metal content. The company intends to continue the benthic studies at the island and borrow areas in 1982. (Au)

B-108170
Dome Petroleum - McKinley Bay dredging programme. Phase I : geochemical baseline survey and environmental monitoring during 1979 operations / Arctic Laboratories Limited. Thomas, D.J. Dome Petroleum Limited [Sponsor].

Inuvik, N.W.T. : Arctic Laboratories Ltd., 1979.
2 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE27)
Appendices.
References.
ACU

Surface sediment samples were collected at the McKinley Bay and Tuk Channel dredging sites before the initiation of dredging operations. They were analysed for total iron, copper, zinc, chromium, nickel, cadmium, lead, beryllium, arsenic and mercury; total PCB's, DDT and DDE; total organic carbon; hexane extractable oil and grease; and sediment particle size distribution as required by the Ocean Dumping Control Act. Greater variability was observed in all parameters for the McKinley Bay sediments. Wide compositional ranges were observed for heavy metals but all were within the accepted range of uncontaminated coastal marine sediments. ... The data indicate that all samples were representative of uncontaminated coastal marine sediments. ... [Part B, Environmental monitoring, describes] A sampling programme ... conducted at McKinley Bay ... during dredging operations to estimate the environmental impact of dredging and the disposal of dredge spoil at sea by measuring the spatial and temporal variation of the following selected water properties: 1. conductivity - temperature, 2. dissolved oxygen, 3. transmissibility, 4. pH, 5. suspended particulate matter. At the time of sampling, the dredge ship was operating just south of the mouth of McKinley Bay .... All measurements were made on a ship-of-opportunity basis from the 'F-15', a vessel from the Zanen Verstroep support fleet. This report summarizes and describes all collected data. (Au)

B-108200
Preliminary assessment of seismic sources and seismicity of the Canadian Beaufort Sea and preliminary evaluation of potential behavior of sand islands during earthquakes / Woodward-Clyde Consultants. Dome Petroleum Limited [Sponsor].
San Francisco : Woodward-Clyde Consultants, 1980.
2 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE30)
References.
ACU

Dome Petroleum Limited proposed to construct sand islands in the Canadian Beaufort Sea for exploration drilling, and/or production purposes. These islands will be constructed of dredged sand at water depths ranging from approximately 26 meters to 60 meters. To assess the potential behavior of these islands during earthquakes, a clearer understanding of the seismic sources and the seismicity of the area is required. Accordingly, a scope of work was developed consisting of the following tasks: Task 1 - Assessment of seismic sources and seismicity. ... Task 2 - Review of instrumentation program. ... 3 - Evaluation of potential behavior of sand islands during earthquakes. ... The results of these tasks are summarized in Section 1, 2, and 3 of this report, respectively. Recommendations for future work are summarized in Section 4. (Au)

B-109320
Pre-Mesozoic geology in the subsurface of Peel River map area, Yukon Territory and District of Mackenzie / Pugh, D.C.
Ottawa : Geological Survey, 1983.
x, 61 p. : table ; 28 cm + 6 microfiches (in pocket) + 35 figures (folded in case).
(Memoir - Canada. Geological Survey, 401)
Appendices : 6 microfiches in pocket.
References.
ACU

The thick sequences of sedimentary rocks, occurring in two structural basins in the Peel River area, have long been a target of economic interest, owing to their hydrocarbon and mineral potential. As a result of exploratory drilling, surface mapping, and many local studies, the need has developed for a broad regional synthesis of the stratigraphy and geological history of the area. This report is intended to satisfy this need, thereby assisting in the evaluation of the economic potential. Subsurface data have been used to compile a series of maps and cross-sections, illustrating the stratigraphy and structure of the area; nomenclature has been reviewed and the geological history elucidated. (Au)

B-109932
Jurassic and Lower Cretaceous subsurface stratigraphy of the Mackenzie Delta-Tuktoyaktuk Peninsula, N.W.T. / Dixon, J.
Ottawa : Geological Survey of Canada, 1982.
52 p. : figures (some folded in pocket), tables ; 28 cm.
(Bulletin - Canada. Geological Survey, 349)
Appendices.
ACU

The Jurassic-Lower Cretaceous succession in the subsurface of the Mackenzie Delta area consists of alternating sandstone- and shale-rich lithostratigraphic units. Shale-rich units include the Husky, McGuire, Siku (new name), Mount Goodenough and Arctic Red Formations. Sandstone-dominant units include the Bug Creek Group and Martin Creek, Kamik (new name), Rat River and Atkinson Point Formations. The Martin Creek, McGuire and Kamik Formations comprise the newly defined Parsons Group. Nine depositional-episodes occurred in the Early Jurassic to Albian, each represented by a basinward prograding lens of clastic sediments (depositional-complex). Several of the episodes were interrupted by periods of uplift and subaerial erosion, resulting in major regional unconformities. During depositional-episodes 1 and 3 ... sedimentation was limited to the southwestern part of the Mackenzie Delta but in the following episode deposition expanded southwards and eastwards. In the Early Albian (depositional-episode 9: Arctic Red Formation) there was further expansion of the depositional basin and the strandline migrated well to the south of the Mackenzie Delta area. During each of the depositional-episodes the main source of clastic sediment was to the south and southeast but during certain periods in depositional-episodes 7 and 8 ... a local northerly source area existed. (Au)

B-111430
Palaeogeographic and tectonic implications of the Lower and Middle Jurassic facies patterns in northern Yukon Territory and adjacent Northwest Territories / Poulton, T.P.
(Arctic geology and geophysics : proceedings of the Third International Symposium on Arctic Geology / Edited by A.F. Embry and H.R. Balkwill. Memoir - Canadian Society of Petroleum Geologists, 8, 1982, p. 13-27, figures)
References.
ACU

The stratigraphic relations in the Lower and Middle Jurassic rocks of northern Yukon and adjacent parts of Northwest Territories indicate deposition on a broad shelf trending northeast-southwest along the contemporary North American cratonic margin. Previous interpretations of a two-sided marine trough extending generally north-south across northern Yukon ... are not substantiated. Re-examination of the stratigraphic evidence in northern Yukon and Alaska does not indicate the presence of a source-landmass in northern Alaska and northwestern Yukon ... in Early and Middle Jurassic times. The first major supply from such a sediment source, in northern Alaska, is in the Late Jurassic. Northerly rather than southerly sources are indicated for older Jurassic rocks in northern Alaska. Transcurrent movement in either direction on the Kaltag Fault can neither be supported nor rejected by the Jurassic record in northern Yukon. Hypotheses of counter-clockwise rotation of northern Alaska away from Arctic Canada are not supported .... The boreal character of Middle Jurassic marine faunas of northern Alaska firmly allies them with those of the Canadian Arctic. (Au)

B-111449
Upper Oxfordian to Albian geology, Mackenzie Delta, arctic Canada / Dixon, J.
(Arctic geology and geophysics : proceedings of the Third International Symposium on Arctic Geology / Edited by A.F. Embry and H.R. Balkwill. Memoir - Canadian Society of Petroleum Geologists, 8, 1982, p. 29-42, figures, table)
References.
ACU

Over 2500 m of upper Oxfordian to Albian terrigenous clastic rocks are known to be present in the subsurface of the Mackenzie Delta area. These rocks were deposited during at least six major depositional-episodes. Marine conditions prevailed during most of the episodes, with one major phase of alluvial sedimentation in the late Valanginian-early Hauterivian. The source of clastic sediment was predominantly from a southerly direction but during the late Hauterivian-early Barremain and Aptian a local northerly source probably existed. During the late Oxfordian to Aptian depositional-episodes, the basin margin tended to oscillate across the NE-SW-trending Eskimo Lakes Arch. A major basin expansion occurred at the end of the Aptian and the Mackenzie Delta area became the site of mid- to outer-shelf mud deposition during the Albian. (Au)

B-111457
Tertiary sedimentation in the southern Beaufort Sea, Canada / Willumsen, P.S. Cote, R.P.
(Arctic geology and geophysics : proceedings of the Third International Symposium on Arctic Geology / Edited by A.F. Embry and H.R. Balkwill. Memoir - Canadian Society of Petroleum Geologists, 8, 1982, p. 43-53, figures (1 folded))
References.
ACU

Five Tertiary deltaic cycles have been identified in the Beaufort-Mackenzie Basin. These cycles added approximately 90,000 square km to the continental shelf, and deposited in excess of 400,000 cubic km of sediment. The five deltaic cycles followed a distinct counter-clockwise progradational pattern into the Beaufort-Mackenzie Basin with sedimentation beginning in the southwestern part of the basin and shifting northeast. The areal distribution of the three major depositional facies for each of the five deltaic cycles, namely the delta plain, the delta front and the prodelta facies, has been outlined. The recognition of a turbiditic subfacies within the prodelta sediments has been of major importance and has provided new and deeper prospects for petroleum exploration in the Beaufort-Mackenzie Basin. (Au)

B-111465
Sedimentary petrology and stratigraphic analysis of the subsurface Reindeer Formation (early Tertiary) Mackenzie Delta-Beaufort Sea area, Canada.
(Arctic geology and geophysics : proceedings of the Third International Symposium on Arctic Geology / Edited by A.F. Embry and H.R. Balkwill. Memoir - Canadian Society of Petroleum Geologists, 8, 1982, p. 55-81, figures, tables)
References.
ACU

The hydrocarbon-bearing Reindeer Formation (Lower Tertiary), consisting mainly of sandstone, shale, and mudstone, can be traced in the subsurface of the Mackenzie Delta-Beaufort Sea area by lithological, paleontological, geophysical well-log and seismic characteristics. Cross-sections derived from the correlations demonstrate the relationships between stratigraphy, structure, and petroleum occurrences in this complex deltaic succession of sediments. Trap-determining features are faults, including growth faults, structures related to shale-cored diaphirs or anticlines, and uplifts of uncertain origin. ... The predominant provenance indicators suggest a sediment source to the west or southwest, although minor contributions from other sources are possible. The significant proportions of chert, volcanic and phylloid grains from the principal source area play an important role in the diagenesis of the sandstones of the Reindeer Formation. ... Diagenetic features demonstrate, in some places, that deeply-buried sandstones have been brought to shallower depths by subsequent tectonic or diaphiric activity. In addition, the distribution of carbonate cementation-decementation zones within thick sand bodies is non-uniform, defining vertically-segregated zones of high and low secondary porosity. These phenomena are important in terms of their influence on the post-diagenetic movements of subsurface fluids, particularly hydrocarbons. (Au)

B-111724
Stratigraphy of the Rae Group, Coronation Gulf area, districts of Mackenzie and Franklin / Campbell, F.H.A.
(Paper - Canada. Geological Survey, 83- 1A, p. 43-52, figures)
References.
ACU

The Hadrynian Rae Group of the Coronation Gulf area consists predominantly of a shallow-water succession of fine grained sandstones, siltstones, dolomites and shales that accumulated in a broad, NNW-facing basin. Earlier correlations suggested that the group is equivalent to similar rocks in the Richardson Islands area of southern Victoria Island and in the Jameson Islands at the north end of Bathurst Inlet. The dolomite-dominated unit intercalated with the diabase sills, which makes up the bulk of the islands in Coronation Gulf, has been traced from the type area at the Rae River north of Coppermine to Victoria Island. A basal quartzite in the group, initially recognized in northern Bathurst Inlet has been traced westward into the lower part of the Rae Group, thus confirming the earlier interpretation of Rae sediments in the Bathurst Inlet region. Worm burrows, but more importantly trilobite tracks, in the uppermost two units of the initially-defined Rae Group demonstrate that these two at least are Cambrian in age, and that a redefinition of the Rae Group is required. Paleocurrent data from the underlying Husky Creek Formation of the Coppermine River Group suggest the formation was deposited in a generally southwest-trending valley during a pause(s) in extrusion of the partially coeval Copper Creek larvas. (Au)

B-111759
Geology, Redrock Lake and eastern Calder River map areas, District of Mackenzie : the central Wopmay Orogen (early Proterozoic), Bear Province, and the western Archean Slave Province / St.-Onge, M.R. Lalonde, A.E. King, J.E.
(Paper - Canada. Geological Survey, 83- 1A, p. 147-152, figures)
References.
ACU

Archean basement involvement in the early Proterozoic deformational history of Wopmay Orogen can be documented west of the Asiak fold-thrust belt probably as far as the main thermal culmination, which to the north is the locus of Hepburn Batholith emplacement. The Scotstoun Massif is not unlike Carousel Massif, a disharmonic fold structure cored by Archean basement in the Asiak fold-thrust belt. The Acasta Lake antiform located in the axis of the Hepburn thermal culmination is also a candidate for another basement-cored structure in Wopmay Orogen, although this will have to be tested with further work to the south. Within the Archean terrane centred on Redrock Lake, a mafic volcanic belt is intruded on the north side by the granite coring Carousel Massif and is fault bounded on the south side against the Point Lake granitoid terrane by the northeast-trending dextral transcurrent Redrock fault. To the west, the composite Hepburn Batholith has undergone a significant reduction in number and volume of platons over that seen to the north. Between the Hepburn Batholith and the Wopmay Fault Zone, in the high grade units of the Akaitcho Group is emplaced a suite of hornblende diorites and biotite-hornblende granites centred on Bishop Lake. This suite is massive and petrographically unlike the Hepburn Batholith. The Wopmay Fault Zone is a 5-7 km wide belt of proto- to ultramylonites that has been broken by a set of north-south anastomosing brittle faults. These late faults juxtapose blocks of contrasting rock types, metamorphic grade and degree of deformation. (Au)

B-111848
Geology and U-Pb geochronology of parts of the Leith Peninsula and Riviere Grandin map areas, District of Mackenzie / Hildebrand, R.S. Bowring, S.A. Steer, M.E. Van Schmus, W.R.
(Paper - Canada. Geological Survey, 83- 1A, p. 329-342, figures, table)
References.
ACU

This report describes the geology of parts of the Hottah Terrane and Great Bear Magmatic Zone, Wopmay Orogen, which were mapped during the 1982 field season. On Leith Ridge the Hottah Terrane comprises schists, orthogneiss, and foliated granitoid plutons. One of the deformed plutons is 1902 +- 4 Ma. These rocks are cut by plutons of the Great Bear batholith. At Hottah Lake, rocks of the Hottah Terrane include metasedimentary and metavolcanic rocks plus a variety of deformed plutons, one of which is 1914 +- 2 Ma. Unconformably overlying the Hottah Terrane in the Hottah Lake area is a varied and complex sequence of sedimentary rocks, subaerial siliceous to mafic lava flows, ash-flow tuff, and pillow basalts - all intruded by mafic sills. The Hottah Terrane and its cover sequence were later intruded by granitoid plutons of the Great Bear batholith. Regional geological and geochronological considerations suggest that the Hottah Terrane is allochthonous with respect to the Coronation margin and was accreted about 1900-1890 Ma. (Au)

B-111929
Mount Harper complex, Yukon : early Paleozoic volcanism at the margin of the Mackenzie Platform / Roots, C.F.
(Paper - Canada. Geological Survey, 83- 1A, p. 423-427, figure, table)
References.
ACU

The Mount Harper complex in the Ogilvie Mountains consists of 105 square km of undeformed volcanic rocks lying between two thick dolostone units of late Proterozoic and early Paleozoic age. Volcanic stratigraphy indicates three periods of mafic volcanism separated by two effusions of intermediate and felsic composition. Pillowed and massive lava flows comprise more than two thirds of the volcanic pile; subaerially deposited rocks form less than one tenth. Most breccias were formed by fracturing and shattering of crystalline flows, with pyroclastic and laharic deposits locally present. Quartz-phyric lavas, ignimbrite and felsic breccias occur near the top of the pile. Pebbly mudstone and volcarenite are locally intercalated with the volcanic rocks. Three fault sets affect the complex. Block faulting at the edge of the platform may have caused conglomerate deposition and initiated volcanism. Northwest-striking sets appear related to dyke swarms and structural adjustments late in the volcanic history. Other faults are associated with the regional Mesozoic compressional regime. Trace sulphide occurrences were found in the mafic volcanic rocks. (Au)

B-111937
The externides of Wopmay Orogen, Point Lake and Kikerk Lake map areas, District of Mackenzie / Hoffman, P.F.
(Paper - Canada. Geological Survey, 83- 1A, p. 429-435, figures)
References.
ACU

Some results of recent field work are briefly discussed as they pertain to the following topics: (1) north-south stratigraphic continuity of the Precambrian continental-terrace wedge, (2) stromatolite elongation, paleowind direction and global polarity during deposition of the Rocknest dolomite shelf, (3) evidence for primary aragonitic mineralogy of the Rocknest Formation, (4) attempted quantitative paleobathymetry of the upper continental slope, (5) eastward migration of foredeep flysch, (6) nature of basement involvement in Asiak Fold-Thrust Belt, (7) relation of thrusting to the foredeep molasse, (8) mysterious basement-involved cross folding of regional extent, (9) normal faults associated with late transcurrent faulting, and (10) the first reported minor lead-zinc vein mineralization in Rocknest dolomite. Future field work is outlined. (Au)

B-111988
Investigations in the vicinity of Mount Sedgwick, Yukon Territory / Findlay, D.C. Bell, R.T.
(Paper - Canada. Geological Survey, 83- 1A, p. 473-474, figure)
References.
ACU

... The objective of the 1982 work was to obtain geological and geochemical information for this area which lies within the eastern part of the proposed ... [northern Yukon National Park.] The 1982 investigations comprised: (a) a study of local geological relationships and reported mineral occurrences; (b) the collection of stream sediments samples to increase the density of geochemical data over that which was obtained from a 1978 regional geochemical survey (Geological Survey of Canada, 1980a, b, 1981); and (c) the collection of heavy mineral samples (panned concentrates) from selected stream sites. ... (Au)

B-112488
Bathymetry of early Middle Ordovician (Chazy) ostracodes, lower Esbataottine Formation, District of Mackenzie / Copeland, M.J.
Ottawa : Geological Survey of Canada, 1982.
39 p., [9] p. of plates : figures ; 28 cm.
(Bulletin - Canada Geological Survey, 347)
ISBN 0-660-10961-1
References.
ACU

Silicified specimens of 26 genera of early Middle Ordovician (Chazyan) ostracodes occur in two sections of the lower Esbataottine Formation in southwestern District of Mackenzie. ... By means of a bathymetric succession of trilobite biofacies already proposed for platform carbonate strata of the lower Esbataottine Formation, a shallow-water widespread ostracode assemblage ... and a deeper water ostracode assemblage II ... may be distinguished. These ostracode assemblages occur with some modification elsewhere in North America and may be used for the first time to indicate the relative bathymetry of comparable faunas from widely separated segments of the early Middle Ordovician North American continental platform. Five new genera ... and twelve new species are erected. In addition, taxonomic revisions and observations are presented for some previously incompletely known North American Chazy ostracode species and for those taxa observed during the study that may have affinities with Middle Ordovician ostracode faunas from Europe. ... (Au)

B-113840
The Quaternary history of Banks Island, N.W.T., Canada / Vincent, J.-S.
(Geographie physique et Quaternaire, v. 36, no. 1-2, 1982, p. 209-232, figures (1 folded in pocket), tables)
Special issue prepared for the 11th Congress of the International Union for Quaternary Research (INQUA), Moscow, 1982.
References.
ACU

Banks Island is a polar desert where continental ice sheets, spreading from a dispersal centre to the southeast, reached their maximum extent on at least three occasions. ... The Pre-Amundsen Sea preceded the glacierization of the south coast, while the East Coast Sea submerged the east coast up to 120 m, the Meek Point Sea the west up to 20 m and the Investigator Sea the north up to 30 m, during deglaciation. The late Sand Hills Readvance of Thesiger Lobe built a morainic system on the southwest coast. Later, the northeast was covered, during the Russel Stade of Amundsen Glaciation, by Viscount Melville Lobe, emanating from Viscount Melville Sound, and the east coast was drowned up to 25 m by the Schuyter Point Sea. Limits of extent of Laurentide ice in the southwestern Archipelago are proposed for the two stades of the last or Wisconsinan Glaciation. (Au)

B-113867
L'environnement tardiglaciaire du Yukon septentrional, Canada = Late-glacial environment in northern Yukon / Ritchie, J.C.
Cinq-Mars, J. Cwynar, L.C.
(Geographie physique et Quaternaire, v. 36, no. 1-2, 1982, p. 241-250, figures, table)
Special issue prepared for the 11th Congress of the International Union for Quaternary Research (INQUA), Moscow 1982.
References.
English summary.
Text in French.
ACU

... The Bluefish Caves site, located on a scarp of Devonian limestone in the northern boreal forest of the Yukon, has yielded pollen-bearing sediments in addition to abundant paleontological and some archaeological data. A pollen diagram based on samples of late-glacial loess overlain by Holocene humus shows two main pollen assemblages, the lower dominated by herbs and dwarf shrubs and the upper by spruce and alder. Based on these results, but also drawing on recent findings from other sites in N.Yukon, we offer the following reconstruction of the vegetation history of the region. The vegetation of the late-glacial period, from 16,000 to 12,000 BP, was a sparse herb tundra on upland surfaces and a complex of sedgegrass marshes with willow on lowlands. There was a notable change in cover at the beginning of the Holocene when spruce forest spread to all upland surfaces except the highest ridges, and paludification in the lowlands resulted in the spread of bog and mire communities. (Au)

B-114898
Upper Cambrian and lower Ordovician trilobite biostratigraphy of the Rabbitkettle Formation, western District of Mackenzie / Ludvigsen, R.
Toronto, Ont. : Royal Ontario Museum, 1982.
188 p. : figures ; 26 cm.
(Life sciences contributions, no. 134)
ISBN 0-88854-287-9
References.
ACU

Two measured sections of the upper Rabbitkettle Formation in the western District of Mackenzie are separated by a thrust fault. These sections provide a record of silicified trilobite faunas across the Cambrian-Ordovician boundary in open marine carbonate rocks along the deeper portion of the shelf - a North American palaeogeographic setting not previously extensively sampled for macrofossils. A new biostratigraphy is proposed for the Tempealeauan to Lower Tremadocian interval in this setting. ... (Au)

B-115568
Aspects of the Rocknest Formation, Asiak Thrust-Fold Belt, Wopmay Orogen, District of Mackenzie / Grotzinger, J.P. Hoffman, P.F.
(Paper - Canada Geological Survey, 83-1B, p. 83-92, figures)
References.
ACU

Field study of the Rocknest Formation during 1981 and 1982, and laboratory study during the fall of 1982 has produced several interesting findings which are summarized in this report. Topics are: (1) subdivision of Rocknest Formation into ten informal members, (2) Rocknest shelf cyclicity and paleogeography, (3) shelf-to-slope transitions, (4) paleoclimate, and (5) evidence of possible microbial remnants in stromatolite bioherms of the Odjick/Rocknest transition beds. Future fieldwork is outlined. (Au)

B-117404
Timing of emplacement of the Muskox intrusion : constraints from Coppermine homocline cover strata / Kerans, C.
(Canadian journal of earth sciences, v. 20, no. 5, May 1983, p. 673-683, figures)
References.
ACU

The Muskox intrusion is a Middle Proterozoic shallow-level mafic-ultramafic layered intrusion in the northwest corner of the Bear Province of the Canadian Shield. ... To date, radiometric, paleomagnetic, and geochemical evidence has produced only equivocal results concerning the age of the Muskox intrusion relative to overlying Coppermine River Group basalts and Mackenzie diabase dykes. Stratigraphic redefinition of and structural relationships [illegible] the cover sequence of the intrusion pro[illegible]e the best available evidence for the age of the Muskox intrusion. ... Syndepositional uplift and normal faulting within uppermost Dismal Lakes Group strata were most pronounced near the exposed roof of the intrusion ... At least 70 m of sediments was deposited after this initial disturbance, but before extrusion of the Coppermine River Group basalts (which heralded the main emplacement event). This thickness of sedimentary strata implies a period of several hundred thousand years between the two igneous events. These results support earlier contentions that the Mackenzie igneous event, comprising emplacement of Mackenzie dykes, Coppermine River Group basalts, and the Muskox intrusion, was a coherent mafic igneous event that occurred approximately 1200 Ma ago, with the Muskox intrusion as a locus. (Au)

B-117412
Geochemistry and petrogenesis of basaltic rocks from Coppermine River area, Northwest Territories / Dostal, J. Baragar, W.R.A. Dupuy, C.
(Canadian journal of earth sciences, v. 20, no. 5, May 1983, p. 684-698, figures, tables)
References.
ACU

Proterozoic basaltic flows (>2000 m thick) and associated dykes and sills from the Coppermine River area, Northwest Territories have chemical compositions typical of continental tholeiites. The low Mg/Fe ratio and abundances of Ni and Cr indicate that the lavas were extensively fractionated prior to extrusion. The variations of incompatible elements such as K, Rb, REE, Y, Zr, Nb, and Th suggest that the rocks were affected by interaction with continental crust. The samples least affected by contamination have trace-element compositions very similar to those of P-type mid-ocean ridge basalts. It is suggested that continental tholeiites have been generated from the same source as P-type oceanic tholeiites ... and geochemical features, such as the enrichment of some lithophile elements in many of these rocks, may be related to crustal contamination. The variations within the volcanic pile of the Coppermine River area are related to those of an exposed part of the Muskox layered intrusion. (Au)

B-117463
Some silicified Middle Silurian rostoconchs (Mollusca) from the Mackenzie Mountains, N.W.T., Canada / Johnston, D.I. Chatterton, B.D.E.
(Canadian journal of earth sciences, v. 20, no. 5, May 1983, p. 844-858, ill., figures)
References.
ACU

A silicified rostroconch fauna is described from strata of Early (late Llandovery) to Middle (Wenlock to early Ludlow) Silurian age in the Mackenzie Mountains. Two new genera, Cassowarioides and Nehedia, and nine new species, Bigalea buskasi, B. tercierae, Bransonia foxi, Cassowarioides perryi, C. stelcki, Mulceodens schneideri, M. wilsoni, Nehedia bainsi, and N. grovesi, are proposed. An examination of the stratigraphic ranges of some of these taxa suggests that the rostroconchs may have some biostratigraphic utility during the Silurian. (Au)

B-120251
Proterozoic aeolian quartz arenites from the Hornby Bay group, Northwest Territories, Canada : implications for Precambrian aeolian processes / Ross, G.M.
(Precambrian research, v. 20, no. 2/4, June 1983, p. 149-160, figures)
References.
ACU

The Hornby Bay Group is a Middle Proterozoic 2.5 km-thick succession of terrestrial siliciclastics overlain by marine siliciclastics and carbonates. A sequence of conglomeratic and arenaceous rocks at the base of the group contains more than 500 m of mature hematitic quartz arenite interpreted to have been deposited by migrating aeolian bedforms. Bedforms and facies patterns of modern aeolian deposits provided a basis for recognizing two sequences of aeolian arenite. ... (Au)

B-120278
Old Crow tephra : a new late Pleistocene stratigraphic marker across north-central Alaska and western Yukon Territory / Westgate, J.A. Hamilton, T.D. Gorton, M.P.
(Quaternary research, v. 19, no. 1, Jan. 1983, p. 38-54, figures, tables)
References.
ACU

In this paper we demonstrate the presence of an extensive tephra layer across Alaska and the Yukon Territory, the first widespread tephra of Pleistocene age to be documented in this area. We call this unit the Old Crow tephra, as our initial studies were on samples from the Old Crow region of the northern Yukon. We present comprehensive evidence for equivalence of the widely separated tephra samples and comment on the stratigraphic significance of the deposit. (Au)

B-122246
Geothermometry and geobarometry applied to early Proterozoic "S-type" granitoid plutons, Wopmay Orogen, Northwest Territories, Canada / Pattison, D.R.M.
(Contributions to mineralogy and petrology, v. 79, no. 4, 1982, p. 394-404, figures, tables)
References.
ACU

Many of the "S-type" granitoid plutons that comprise Hepburn and Wentzel Batholiths of the early Proterozoic Wopmay Orogen contain garnet, biotite and rarely cordierite and sillimanite. The garnet, cordierite and sillimanite are interpreted to be relict crystals brought up from the depth of origin of the magmas. Two methods of geothermobarometry were applied to ten samples from the two batholiths .... The geothermobarometers successfully distinguish between granitoid rocks that were generated at depth and those that were formed by anatexis of country rocks near the level of emplacement. (Au)

B-122734
Selwyn plutonic suite and its relationship to tungsten mineralization, southeastern Yukon and District of Mackenzie / Anderson, R.G.
(Paper - Canada. Geological Survey, 83- 1B, p. 151-163, figures, table)
References.
ACU

Two northwest-trending, coeval, mid-Cretaceous ... plutonic belts in the southeastern Selwyn Mountains are characterized by the presence or absence of hornblende as an essential mineral.

The northeastern belt comprises granite or granodiorite with common or abundant hornblende. The southwestern belt consists of granite with common biotite, minor muscovite and little or no hornblende. Plutons in either belt may be: small or large; composite or homogeneous; massive lineated or foliated; megacrystic or equigranular. Inclusion mineralogy and the abundance and type of intraplutonic dykes differ for each group. Tungsten skarns are associated with some plutons lacking hornblende. Satellitic intrusions near, or marginal phases within, these plutons contain combinations of andalusite, garnet, tourmaline and/or muscovite apparently as primary accessory minerals. Geochemistry for these phases in the Mactung pluton indicates they are also anomalously rich in tungsten (8-12 ppm). (Au)

B-122807
Structure cross-sections across Asiak Foreland Thrust and Fold Belt, Wopmay Orogen, District of Mackenzie / Tirrul, R.
(Paper - Canada. Geological Survey, 83- 1B, p. 253-260, figures)
References.
ACU

Two structure cross-sections across Asiak Foreland Thrust and Fold Belt display a lower structural level characterized by folded Odjick-Rocknest formation imbricates on a sole thrust 100-300 m above Archean basement, and an upper level dominated by tight chevron folds of the Recluse Group. Minimum shortening estimates are consistently above 40 per cent, indicating that the northern Rocknest shelf edge has been translated no less than 47 km toward the craton. Numerous reversals of vergence, and the lack of change in average structural level across its width suggest that the active belt was a wedge of low taper. (Au)

B-122840
Origin of pitchblende veins in the Union Island area, Great Slave Lake, Northwest Territories / Gandhi, S.S.
(Paper - Canada. Geological Survey, 83- 1B, p. 317-326, figures, table)
References.
ACU

Pitchblende veins are sparsely distributed in an 8x1 km zone of northeast-trending, steeply dipping Aphebian sedimentary rocks deposited on Archean granitic basement and affected by complex faulting. They occur in brecciated dolomite of the Union Island Group on the east shore of Union Island, and along fractures subsidiary to a nearly vertical, northeast-trending fault between phyllites of this group and arkosic quartzite of the younger Sosan Group, which is exposed for a distance of 4 km on Opener Island to the east. The veins are close to the unconformity between the host rocks and the younger, gently dipping clastic redbeds of the Late Aphebian Et-Then Group, which most probably covered the mineralized zone at one time. A supergene origin for the veins is proposed on the basis of geological setting, mineralogy, presence of Ag, Se and V, isotopic dates on pitchblende, and lack of evidence for alternative magmatic or metamorphic hydrothermal sources. (Au)

B-122890
Fluorescent minerals from the Fort Smith area, District of Mackenzie, N.W.T. / Bostock, H.H. Thompson, D.L.
(Paper - Canada. Geological Survey, 83- 1B, p. 401-402, figure, table)
References.
ACU

Two new occurrences of scheelite ($CaWO_4$), two of flourescent potash feldspar, and one of yellow fluorescent andalusite are reported. (Au)

B-122939
Interpretation of a gravity profile over a contact zone between an Archean granodiorite and the Yellowknife Supergroup using an interactive computer program with partial automatic optimization / McGrath, P.H. Henderson, J.B. Lindia, F.M.
(Paper - Canada. Geological Survey, 83- 1B, p. 189-194, figures)
References.
ACU

An interactive computer program with partial automatic optimization is described that is used to calculate the anomalies of 2 1/2-D model sources. As an example, a gravity profile is presented across an Archean basin margin complex involving granitoid, metavolcanic and metasedimentary rocks at Yellowknife. On the basis of the gravity model it is shown that the volcanics, which outcrop only at the margin of the basin, extend to a depth of 2 to 3 km (depth determinations are shown to be very sensitive to the density contrasts used) and are continuous for a distance of about 15 km into the basin below the metasediments which occupy the main part of the basin. Within the basin an inverse relationship between the modelled thickness of the metasedimentary block and its grade of metamorphism is explained by the occurrence of nearer surface intrusive granitoid plutons in the high grade zone. (Au)

B-123315
Sedimentology of the Neocomian Parsons Group in the subsurface of the Mackenzie Delta, N.W.T., arctic Canada / Dixon, J.
(Bulletin of Canadian petroleum geology, v. 30, no. 1, Mar. 1982, p. 9-28, figures, table)
Appendix.
References.
ACU

The Parsons Group in the subsurface of the Mackenzie Delta area consists of three formations: in ascending order, the Martin Creek, McGuire and Kamik. A late Berriasian to Middle Hauterivian age is indicated for the group. Sandstone is the dominant lithology in the Martin Creek and Kamik Formations, whereas mudstone is dominant in the McGuire Formation. Martin Creek strata are interpreted as barrier-island deposits, with offshore, shoreface and lagoonal sediments identified from core material. The McGuire Formation consists mostly of bioturbated mudstone with thin interbeds of sandstone, and is interpreted to have formed in a nearshore setting. Fluvial-channel, floodplain, lagoon and marsh deposits are present in the lower third of the Kamik Formation. In the upper two-thirds, inner-shelf and littoral deposits are arranged in a series of stacked barrier-island successions. Tidal-delta deposits are interpreted to be present within these barrier-island successions. Rocks of the Parsons Group were deposited during two depositional episodes. ... the older, Berriasian to earliest Valanginian, episode. ... [and] the younger, Early Valanginian to Middle Hauterivian, episode. ... The final phase of sedimentation was an episodic transgression when several stacked barrier-island deposits were formed. (Au)

B-123331
Lagenicula validespinosa, Imperial Formation, District of Mackenzie / Hyslop, K. Hills, L.V.
(Bulletin of Canadian petroleum geology, v. 30,

no. 3. Sept. 1982, p. 230-235, figures)
References.
ACU

Examination of material from both the Frasnian Maclarenii and Devonica zones of Chi and Hills (1976) has yielded a lageniculate species superficially similar to L. constricta and apparently restricted to these zones. ... The purpose of this paper is to describe and illustrate the new species and to discuss its stratigraphic significance. The material examined is from the Imperial Formation, collected at Imperial River, District of Mackenzie .... (Au)

B-124800
Stratigraphy and microfossils of the Jurassic Bug Creek group of northern Richardson Mountains, northern Yukon and adjacent Northwest Territories / Poulton, T.P.   Leskiw, K.   Audretsch, A.
Ottawa, Geological Survey of Canada, 1982.
137 p. : figures, tables ; 28 cm.
(Bulletin - Canada. Geological Survey, 325)
ISBN 0-660-11173-X
Appendices.
References.
ACU

The Bug Creek Group comprises the southeastern basin-marginal arenaceous facies of the Brooks-Mackenzie Basin during Sinemurian through early Oxfordian times. It is a northwesterly thickening wedge of shelf sandstone and siltstones that grades into a basinal shale facies of the Kingak Formation. ... The Almstrom Creek and Aklavik Formations are two major marine sandstone units each probably storm-wave or tide-dominated, that prograded onto a shallow shelf and which represent regressive phases. Another regressive phase, without a significant sedimentary wedge is represented by the Manuel Creek Formation. This is associated with uplift and minor erosion of the basin margin. The Bug Creek Group yields ammonites, bivalves, and other marine macrofauna locally, and a poorly preserved marine microbiota that is only locally prolific. Of this, 24 species of agglutinated foraminifera, 1 species of calcareous foraminifera, 1 species of ostracod, 1 species of radiolarian, 8 species of dinoflagellate, 7 species of spore or pollen, and 2 species of undifferentiated microplankton are figured, none as new species. (Au)

B-124826
Tectonic setting and sulphide deposits of the Hackett River belt, Slave province / Frith, R.A.   Roscoe, S.M.
(CIM bulletin, v. 73, no.816, Mar. 1980, p. 143-153, figures, table)
References.
ACU

Among the most important of geological problems are the mode of formation of Archean volcanic-sedimentary belts and the identification of factors that caused the deposition of relatively large, or numerous, base metal deposits in some of these belts, but apparently not in others. The Slave Structural Province, with many small volcanic belts, has been less studied and prospected than the Superior Province and some of the other similar Archean blocks in the world. ... (Au)

B-134287
The late Tertiary - Quaternary stratigraphic record of the Duck Hawk Bluffs, Banks Island, Canadian Arctic Archipelago / Vincent, J.-S.   Occhietti, S.   Rutter, N.   Lortie, G.   Guilbault, J.-P.   De Boutray, B.
(Canadian journal of earth sciences, v. 20, no. 11, Nov. 1983, p.1694-1712, figures, tables)
References.
ACU

The Duck Hawk Bluffs, of southwestern Banks Island in the Canadian Arctic Archipelago, record a succession of late Tertiary - Quaternary events. Organic-bearing sediments of eolian, fluvial, and lucustrine origin that overlie the Late Cretaceous Kanguk Formation and the Miocene Beaufort Formation record preglacial events of Pliocene and (or) early Quaternary age and are assigned to the Worth Point Formation. These are covered by glacial sediments of the Duck Hawk Bluffs Formation associated with the Banks Glaciation, the oldest of the three recognized glaciations to reach the island. Associated with the glacial deposits are marine or glaciomarine sediments deposited in the glacio-isostatically depressed area as the ice both advanced and retreated. These sediments are in turn covered by interglacial sediments (Morgan Bluffs Formation), by marine deposits (Big Sea sediments associated with the Thomsen Glaciation), and by younger interglacial sediments (Cape Collinson Formation). Events associated with the early Wisconsinan M'Clure Stade of the last or Amundsen Glaciation are recorded in a coastal section east of the Duck Hawks Bluffs. There, marine deposits (pre-Amundsen Sea sediments) are covered by glacial deposits (Sachs Till) of the M'Clure Stade. D/L ratios of aspartic acid in fossil wood from the Morgan Bluffs and Cape Collinson interglacial sites, respectively, vary between 0.22 and 0.31 and 0.12 and 0.13, while Holocene wood is 0.08. A composite section is proposed for these bluffs that record some of the oldest events in the Canadian Quaternary and the various units are correlated with the previously published Quaternary framework for Banks Island. (Au)

B-135399
Stratiform sulfide and barite-fluorite mineralization of the Vulcan prospect, Northwest Territories : exhalation of basinal brines along a faulted continental margin / Mako, D.A.   Shanks, W.C.
(Canadian journal of earth sciences, v. 21, no. 1, Jan. 1984, p. 78-91, figures)
References.
ACU

Laminated and massive sulfide (pyrite, sphalerite, galena) mineralization and massive barite - fluorite - galena lenses occur in Upper Silurian - Lower Devonian Road River Formation shales of the Vulcan property along the eastern flank of the Selwyn Basin, Northwest Territories, Canada. The 5 km thick stratigraphic section, ranging in age from Hadrynian through Mississippian, offers insight into the nature of the Mackenzie Platform - Selwyn Basin transition. Abrupt facies changes, synsedimentary faults, debris flows, local unconformities, and the presence of high-potassium mafic flows indicate extensional tectonics during deposition of the Road River Formation. Mineralization resulted from heated, metal-rich basinal brines that vented on the sea floor up normal faults. Sulfur-isotope studies indicate that both sulfate and sulfide were derived from the exhaling metalliferous brine. Sulfur-isotope data also suggest that reduction of sulfate in the brine occurred as a result of organic decomposition, possibly during thermal maturation of hydrocarbons at temperatures greater than 80 degrees C. Fluid inclusion observations indicate that the brine salinity reached 26 wt.% NaCl for at least a portion of the evolution of the hydrothermal system. Cooling of the brine during venting into bottom waters caused initial rapid precipitation of fine-grained barite, resulting in a baritic buildup above vent areas.

Continued percolation of the brine through the baritic mound caused recrystallization of the barite and then the deposition of interstitial fluorite and galena. In other areas the dense ore fluid collected in topographic depressions, or brine pools, in which sulfide minerals accumulated under anoxic conditions. Location of hydrothermal vents, paleotopography, and intensity of hydrothermal activity were the main controls on the thickness, distribution, and grade of Vulcan mineralization. (Au)

B-137278
Geothermometry and geobarometry in pelitic rocks of north-central Wopmay Orogen (early Proterozoic), Northwest Territories, Canada / St.-Onge, M.R.
(Bulletin - Geological Society of America, v. 95, no. 2, Feb. 1984, p. 196-208, figures, tables)
Appendices.
References.
ACU

Pressure and temperature estimates for the pelitic schists and gneisses along the east flank of the Hepburn Batholith (early Proterozoic) have been determined by means of an electron-microprobe study of coexisting garnet, biotite, plagioclase, and cordierite. ... (Au)

B-138860
Preliminary geclogical reconnaissance of the Hill Island Lake and Taltson Lake areas, District of Mackenzie / Bostock, H.H.
(Paper - Canada. Geological Survey, 84- 1A, p. 165-170, figures)
References.
ACU

Precambrian rocks in the vicinity of Hill Island Lake occupy a north-south oriented central belt comprising greywache-mudstones intruded by muscovite granite and pegmatite, and two flanking granitic gneiss terranes. On the west flank the gneisses include a zone within which remnants of Archean paragneiss are preserved. On the east flank the gneisses have been intruded by syntectonic or pretectonic gabbro bodies, and surround a large lens of augen gneiss. Diabase dykes of probable Helikian age are most common in the eastern gneisses. The central belt is separated from gneisses to the east by a complex zone of gneissic tectonites. This zone bifurcates about a northern wedge of gneisses resembling those of the eastern belt, but which have been brecciated and altered, and upon which Nonacho conglomerates are locally preserved. Graded beds and minor folds indicate that the greywache-mudstones underwent early, gently plunging, isoclinal folding. Later intersecting cleavage in both sediments and tectonites displays a complex pattern suggesting shearing with primarily sinistral displacement along the tectonite zone. This zone is part of an extensive fault system extending northward from Lake Athabasca to the Slave-Chantrey mylonite belt south of Great Slave Lake. (Au)

B-138878
Deformation and metamorphism of the Coronation Supergroup and its basement in the Hepburn Metamorphic-Plutonic Zone of Wopmay Orogen : Redrock Lake and the eastern portion of Calder River map areas, District of Mackenzie / St.-Onge, M.R. King, J.E. Lalonde, A.E.
(Paper - Canada. Geological Survey, 84- 1A, p. 171-180, figures)
References.
ACU

In the Hepburn Metamorphic-Plutonic Zone of Wopmay Orogen, basement to the early Proterozoic Coronation Supergroup is exposed continuously by a major northeast-southwest cross fold to within 25 km of the Wopmay Fault Zone. The extent of a Proterozoic overprint on the basement units is limited to a retrograde chlorite schistosity parallel to, and within 100 m of the unconformity. Overlying the basement are between 300 and 600 m of autochthonous early Proterozoic sediments and mafic volcanics which show relatively little strain. Structurally above the low strain domain is a high strain ductile domain characterized by several sets of east-verging recumbent folds. The high strain domain is interpreted to be the ductile equivalent of the brittle basal decollement in the Asiak Foreland Thrust and Fold Belt. The Calderian thermal culmination, exposed in oblique section by the late cross fold, has the profile of an east-verging thermal lobe, rooted west of the basement-cored folds. The underside of the thermal culmination is outlined by inverted mineral isograds and is underlain by basement that remained, in part, relatively cold during metamorphism. Emplacement of the Hepburn Intrusive Suite is coincident with upper structural levels within the Calderian thermal culmination and no Hepburn plutons are found in the basement units. Mesoscopic geometry of structures in the Wopmay Fault Zone documents a history of predominantly dextral simple shear with a large component of resolved pure shear. (Au)

B-138886
Geology of the early Proterozoic rocks in parts of the Leith Peninsula map area, District of Mackenzie / Hildebrand, R.S. Annesley, I.R. Bardoux, M.V. Davis, W.J. Heon, D. Reichenbach, I.G. Van Nostrand, T.
(Paper - Canada. Geological Survey, 84- 1A, p. 217-221, figures)
References.
ACU

On southern Leith Ridge a variety of deformed and undeformed granitoid intrusions cut deformed sillimanite-melt-bearing paragneisses. In the Hottah Lake-Fishtrap Lake area rocks of the Hottah Terrane are mostly cordierite-bearing paragneisses intruded by foliated plutons. The plutons are unconformably overlain by sedimentary and volcanic rocks of the MacTavish Supergroup and the supra-crustal section was intruded by plutons of the Great Bear Batholith. (Au)

B-138894
An estimate, based on magnetic interpretation, of the minimum thickness of the Hornby Bay Group, Leith Peninsula, District of Mackenzie / McGrath, P.H. Hildebrand, R.S.
(Paper - Canada. Geological Survey, 84- 1A, p. 223-228, figures)
References.
ACU

A minimum thickness of 2 km of Hornby Bay Group northwest of Leith Ridge is deduced on the basis of magnetic modelling and upward continuation analyses of aeromagnetic profile data. The analyses are predicated on the assumption that Cleaver Diabase, which produces aeromagnetic anomalies over Great Bear Magmatic Zone and Hottah Terrane, also occurs within the basement beneath the Hornby Bay Group but with a magnetic expression masked by this group. The two analyses confirm the basic similarity of the modelling and upward continuation interpretation techniques. (Au)

B-138908
Gold, tin, uranium and other elements in the Proterozoic Nonacho sediments and adjacent basement rocks near MacInnis Lake, District of Mackenzie / Maurice, Y.T.
(Paper - Canada. Geological Survey, 84- 1A, p. 229-238, figures, tables)
References.
ACU

Heavy mineral layers in a pink arkose-quartz-rich conglomerate unit of the Nonacho Group contain notable amounts of U, Th, Sn, Nb, Ta and Au. Enrichment in Th, Sn, Nb, Ta and to a lesser extent in U is related to the detrital dispersal and accumulation of thorite-uranotherite, cassiterite and a suspected but undetected Nb-Ta mineral. These minerals probably originated from sources to the west of the Nonacho basin, in the Fort Smith belt. The clastic minerals are consistently enriched in the heavy mineral layers throughout the arkose-conglomerate unit although Sn appears to be more concentrated towards the base of the sedimentary pile. A decline in the concentrations of the various clastic minerals from south to north is also apparent and reflects increasing distance from source. (Au)

B-138940
Surficial deposits of the Redrock Lake area, District of Mackenzie / St.-Onge, D.A.
(Paper - Canada. Geological Survey, 84- 1A, p. 271-278, figures)
References.
ACU

Extensive areas of the Redrock Lake region are covered by surficial sediments, which have been grouped into these categories: till, outwash, glaciolacustrine silt, deltaic gravel, and sandy alluvium. Except for recent alluvium, the deposition of the sediments is related to the overriding of the Redrock Lake area by two ice streams originating to the east, and to the subsequent downwasting of this ice mass. The regular spacing of "glaciofluvial corridors" every 10 to 12 km testifies to the enormous amount of water that resulted from ice melting. The abundance of outwash, minor diamicton ridges, stony ice contact glaciolacustrine rhythmites, and the absence of major moraine ridges strongly suggest the gradual downwasting of an ice mass with no significant readvance pulses. (Au)

B-139017
Distribution and structural setting of fertile granites and related pegmatites in the Yellowknife pegmatite field, District of Mackenzie / Meintzer, R.E. Wise, M.A. Cerny, P.
(Paper - Canada. Geological Survey, 84- 1A, p. 373-381, figures, tables)
References.
ACU

Based on field work in the 10,000 square km Yellowknife pegmatite field, the gross mineralogical, textural, and structural characteristics of the pegmatite series and granites, possibly related to the pegmatities, are described. Field examination and limited geochemistry suggest that granites, possibly parental to the pegmatites, range in composition from alkali-feldspar granite to granodiorite, although they are predominantly syenogranite and monzogranite. ... On the basis of mineralogical and structural data, it is not yet possible to define genetic linkage between the pegmatites and individual plutons or plutonic units. (Au)

B-139807
Paleoecological approaches to a study of tree-line fluctuation in the Mackenzie Delta region, Northwest Territories : preliminary results / Spear, R.W.
(Tree-line ecology : proceedings of the Northern Quebec Tree-line Conference / Edited by P. Morisset and S. Payette. Collection Nordicana, no. 47, 1983, p. 61-72, figures, tables)
References.
ACU

Pollen and macrofossil analyses of lake sediment provide evidence of Holocene movement of tree-line in the Mackenzie Delta region. The sites selected lie along a south-north transect from Inuvik, 15 km south of continuous boreal forest, to Richards Island 120 km north of the forest limit. The lakes are ideally suited for both pollen influx and plant macrofossil studies, being less than 10 ha. ... (Au)

B-140694
Paleomagnetism of the Mudcracked formation of the Precambrian Little Dal Group, Mackenzie Mountains, Northwest Territories, Canada / Park, J.K.
(Canadian journal of earth sciences, v. 21, no. 3, Mar. 1984, p. 371-375, figures, tables)
References.
ACU

A previous study detailed the paleomagnetism of red limestones of the Little Dal Group Basinal assemblage, but failed to prove whether the magnetization carried by the red pigment was prefolding. The present study on "red" sandstones of the immediately underlying Mudcracked formation, using acid leaching at three sites, revealed a paleomagnetic direction B in the pigment (266 degrees, -17 degrees; seven samples; k = 28; alpha 95 = 12 degrees), which closely agrees with the probable pigment direction of the Basinal assemblage (273 degrees, -09 degrees; 12 sites; alpha 95 = 11 degrees). Since a fold test of the B sample directions is significant at the 95% probability level, I suggest that the pigment in both units is prefolding (pre-Paleocene at latest). (Au)

See Also : A-64807, A-66460, A-113859, A-115878, A-123404, A-138932, A-139041, C-61395, C-61417, C-98850, C-121568, C-121703, C-121711, C-122700, C-123862, C-126950, C-135380, D-15466, D-107174, D-108197, F-131954, G-25526, H-122718, I-108219, I-108570, I-123242, L-21237, P-45691, P-94714, P-94730, P-94749, P-94757, P-94773, Q-2860, Q-39926, Q-44920, Q-83852, Q-83879, Q-107182, Q-107190, Q-108120, Q-112445, Q-114650, Q-116157, Q-124150, Q-132454, Q-132683, Q-139696, U-22187, U-22519, U-46019, U-59366, U-62693, U-65021, U-84352, U-89079, V-35998, V-71994

C - SOILS AND PERMAFROST

C-6408
The occurrence of permafrost and frozen sub-seabottom materials in the southern Beaufort Sea / Hunter, J.A.M. [et al].
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1976.
iv, 174p. : maps, tables, graphs ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 22)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 22)
Bibliography: p.81-88.
ACU, SSU, NFSMO

Permafrost conditions exist beneath most of the Beaufort Sea shelf area. As a result of large changes in the surface thermal regime in the recent geological past, non-equilibrium conditions are probably found in most areas; hence permafrost is both aggrading and degrading. Permafrost is generally at much higher temperatures offshore than the equivalent permafrost conditions onshore and as a result is much more susceptible to thawing by a thermal disturbance. The occurrence of ice-rich sub-seabottom sediments over large areas of the shelf has been interpreted from seismic data. Such sediments are potentially susceptible to hazardous thermal degradation. Because of low sediment temperatures, natural gas in shallow sediments may be found in the form of clathrate hydrates, which may cause additional technical problems for exploratory drilling ... (Au)

C-12084
Offshore permafrost distribution in the Beaufort Sea as determined from temperature and seismic observations / Neave, K.G. Judge, A.S. Hunter, J.A.M. MacAulay, H.A.
(Paper - Canada. Geological Survey, 78- 1C, p. 13-18, maps, charts)
References.
ACU

Ice-bonded sediments are found over much of the Beaufort Sea continental shelf but are absent from most parts of Mackenzie Bay. They reflect Pleistocene climatic conditions which resulted in the growth of permafrost to depths of 600 m or more. The study made use of oil industry reflection records to determine the distribution of these sediments. (Au)

C-14451
An equilibrium model for hummocks (nonsorted circles), Garry Island, Northwest Territories / Mackay, J.R.
(Paper - Canada. Geological Survey, 79- 1A, p. 165-167, figure)
References.
ACU

Hummocks (nonsorted circles) are a widely distributed type of patterned ground in the boreal forest of lower Mackenzie Valley and the tundra of the Western Arctic coast. ... At the top of a hummock the surface of winter heave and summer subsidence is concave down, whereas at the bottom of the hummock it is concave up. In consequence, an upward cell circulation develops, because movement near the top of the hummock is down and radially outward and movement at the bottom is up and radially inward. (Au)

C-14532
Agricultural potential of certain areas in the Northwest Territories / Rostad, H.P.W. Kozak, L.M.
[Saskatoon : Saskatchewan Institute of Pedology, University of Saskatchewan, 1977.
[50] leaves : map (part. fold. in pocket), tables ; 28cm.
(Publication - Saskatchewan. University. Saskatchewan Institute of Pedology, S 176)
Cover title : Agricultural potential of selected areas in the Northwest Territories.
Glossary.
References.
ACU

This report is based on previous soil surveys of 1968, 1972, 1976 and 1977. Studies on soil capability for agriculture and grazing, climate, soils, and agricultural potential are conducted in the Slave River Lowlands, Upper Mackenzie, Liard and Mackenzie River area, and Hay River area. (ASTIS)

C-14540
Soil survey and land evaluation of the Hay River Valley area, N.W.T / Kozak, L.M. Rostad, H.P.W.
[Saskatoon : Saskatchewan Institute of Pedology, University of Saskatchewan], 1977.
v, 102 leaves : maps, tables ; 28cm.
(Publication - Saskatchewan. University. Saskatchewan Institute of Pedology, S 175)
References.
ACU

This survey was conducted as part of a project to inventory and assess the soil and climatic resources for agriculture in the Territories .... The areas surveyed were selected on the basis of a preliminary evaluation of the climate, native vegetation, current land use, and of those areas where agricultural leases were being applied for. This part of the project was concerned with mapping out and reevaluating the soils along the Hay River Valley between the Alberta border and Great Slave Lake. ... (Au)

C-14559
Soil survey and land evaluation of the Liard and Mackenzie River area, Northwest Territories / Rostad, H.P.W. White, R.A. Acton, D.F. Canada. DIAND. Canada. Dept. of Agriculture
[Saskatoon : Saskatchewan Institute of Pedology, University of Saskatchewan], 1976.
[319]p. : maps, tables, figures ; 28cm.
(Publication - Saskatchewan. University. Saskatchewan Institute of Pedology, S 173)
Financed by the Dept. of Indian Affairs and Northern Development and Canada Dept. of Agriculture.
Appendices.
Bibliography: p.237-239.
ACU

A survey of the lands along the Liard and Mackenzie rivers was initiated in the spring of 1975 with the objective of characterizing and mapping the soils of the area, interpreting the agricultural capability of the soils and providing recommendations for agricultural land use. Consideration was given to other land uses mainly in terms of summarizing existing information, relating that to the soils and pointing out possible areas of land use conflict. ... (Au)

C-15156
Environmental isotopes in permafrost related waters along the Mackenzie Valley corridor / Michel, F.A. Fritz, P.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- , v.1, p. 207-211, figures)
References.
ACU

Water from samples representing five cores, collected along the Mackenzie Valley Corridor, was analysed for its oxygen-18 and tritium contents. ... In all cases, tritium was found only at the surface and no measurable amounts were detected below about 3 meters. Similarly the oxygen-18 contents decreased from about delta oxygen-18 = -23 per mill SMOW at the surface to about delta oxygen-18 = -31 per mill SMOW at depth. ... (Au)

C-15180
Thermal contraction cracks in massive segregated ice, Tuktoyaktuk Peninsula, N.W.T., Canada / Gell, W.A.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of

Canada, 1978- . v.1. p. 277-281, figures)
References.
ACU

Petrological analysis was performed on massive ground ice transected by thermal contraction cracks, in order to ivestigate mode of fracture, infil of cracks and interrelationships among fracture paths. Cracks propagated transgranularly through large crystals of massive ice. Sub-boundaries and other dislocation groups may have aided in micro-crack nucleation, and bubbles probably acted as stress concentrators. Fractures were infilled by freezing of bulk water rather than hoar. ... (Au)

C-15237
Regional occurrence of permafrost, Mackenzie Valley, Canada / Heginbottom, J.A. Kurfurts, P.J. Lau, J.S.O.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- . v.1. p. 399-405, figures, tables)
References.
ACU

... Frozen ground occurs at shallower depths, contains more visible excess ice, and its extent increases from south to north, down the river valley. The main controlling factors appear to be latitude and soil texture. Finer textured soils generally contain more moisture and more ice than coarser soils. Poorly drained sites with a thick cover of peat contain more ground ice than adjacent drier sites. (Au)

C-15733
Impact of interrupting subsurface flow in the northern boreal forest / Soulis, E.D. Reid, D.E.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- . v.1. p. 225-231, figures)
References.
ACU

To study the effect of interrupting flow in the active layer in permafrost regions, an impermeable barrier was constructed in July 1975 across 12m of a 7.1% slope near Chick Lake, N.W.T. To detect possible thermal, hydrologic, and vegetation changes upslope and downslope active layer, water table, and plant cover were measured during the summer of 1975 and 1976. ... (Au)

C-15741
Permafrost beneath channels in the Mackenzie Delta, N.W.T., Canada / Hollingshead, G.W. Skjolingstad, L. Rundquist, L.A.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- . v.1. p. 406-412, figures)
References.
ACU

..., permafrost was located beneath Shallow Bay and other channels. The conditions under which permafrost can persist, or aggrade and its impact on the channel morphology are discussed .... (Au)

C-15768
Permafrost extent in the southern fringe of the discontinuous permafrost zone, Fort Simpson, N.W.T. / Rennie, J.A. Reid, D.E. Henderson, J.E.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- . v.1. p. 438-444, figures, tables)
References.
ACU

... A permafrost mapping study was carried out in the southern fringe of the discontinuous permafrost zone near Fort Simpson, N.W.T., using air photo interpretation and electromagnetic resistivity techniques. The occurrence of permafrost in this portion of the discontinuous zone is most strongly influenced by insulating organic layer thickness and/or shading. ... (Au)

C-17353
Electromagnetic sounding of permafrost, N.W.T., Canada, in summer and winter / Rossiter, J.R. Strangway, D.W. Koziar, A. Wong, J. Olhoeft, G.R.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- . v.1. p. 567-572, figures)
References.
ACU

A variety of electromagnetic (EM) methods have been used to sound permafrost, ... In this paper we report results using two distinct EM methods: audio-frequency magnetotellurics (AMT) and radio-frequency interferometry. ... (Au)

C-17388
Creep test on undisturbed ice-rich silt / McRoberts, E.C. Law, T.C. Murray, T.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- . v.1. p. 539-545, figures)
References
ACU

... The test data have been interpreted in terms of secondary creep. Based on this interpretation, the data suggests that undisturbed ice-rich silt at low stress levels creeps at rates somewhat less than those reported for ice at similar stresses and temperatures. At higher stresses which ultimately lead to failure the creep rates are similar with ice. ... (Au)

C-17965
Interpretation of sub-seabottom permafrost in the Beaufort Sea by seismic methods. Part I. Seismic reflection methods / Hunter, J.A.M. Neave, K.G. MacAulay, H.A. Hobson, G.D.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- . v.1. p. 514-520, figures)
References.
ACU

The occurrence and distribution of ice-bonded permafrost beneath the sea floor of the Beaufort Sea Shelf have been mapped by seismic techniques. The data for the maps comes primarily from refraction arrivals on front ends of unprocessed marine reflection records supplied to us by the oil industry. ... (Au)

C-17973
Interpretation of sub-seabottom permafrost in the Beaufort Sea by seismic methods. Part II. Estimating the thickness of the high-velocity layer / Hunter, J.A.M. Neave, K.G. MacAulay, H.A. Hobson, G.D.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- . v.1. p. 521-526, figures)

References.
ACU

... For thin, shallow, high-velocity layers, ... using attenuation measurements of refracted energy, has been successful. For thicker layers, a dispersion method based on modal propagation ... and a technique based on discrete reflections from the base of the layer have been tried; .... The low signal-to-noise ratio on the unprocessed records makes measurement of thickness unreliable. ... (Au)

C-18414
Thaw consolidation effects in degrading permafrost / McRoberts, E.C. Fletcher, E.B. Nixon, J.F.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- , v.1, p. 693-699, figures, tables)
References.
ACU

This paper examines thaw consolidation effects in thawing permafrost at two sites in the Mackenzie Valley, N.W.T. At these sites excess pore water pressures have been measured. A consideration of the geothermal aspects of degrading permafrost is presented and a comparison between predictions and observations offered. Certain extensions to thaw consolidation theory required in a consideration of degrading permafrost are then investigated. ... (Au)

C-18422
Thaw settlement studies in the discontinuous permafrost zone / McRoberts, E.C. Law, T.C. Moniz, E.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- , v.1, p. 700-706, figures, tables)
References.
ACU

This paper presents the results of thaw settlement tests conducted on permafrost samples obtained along or adjacent to the route of the proposed Arctic Gas pipeline route from Norman Wells, N.W.T. to Zama Lake, Alberta. These tests have been conducted on three sizes of samples representing volume factors of approximately 1, 3 and 23 times. ... (Au)

C-20290
Geothermal studies in the Mackenzie Valley by the Earth Physics Branch / Judge, A.S.
Ottawa : Energy, Mines and Resources Canada, 1975.
iv, 12 leaves : figures, table ; 28cm.
(Geothermal series - Canada. Earth Physics Branch, no. 2)
Cover title.
References.
Text in English and French.
ACU

... the Earth Physics Branch ... has carried out field observations of both the shallow and deep thermal regime of the Mackenzie Valley, conducted laboratory measurements of the thermal properties of subsurface soils and rocks, both frozen and unfrozen, has examined theoretically the thermal effects resulting from changes in the surface energy balance and compared these results with some observed temperature profiles. ... (Au)

C-21261
Offshore permafrost, southern Beaufort Sea / Mackay, J.R.
[Calgary : Distributed by APOA, 1972].
1 microfiche : ill. ; 11x16cm.
(APOA project no. 4 : Geological analysis of ocean floor samples. Report, no. 2)
References.
ACU, NFSMO

In the spring of 1970, permafrost was found in drilling operations (Ocean Floor Sampling - Arctic Ocean of APOA) in the southern Beaufort Sea off the Yukon Coast and Mackenzie Delta-Tuktoyaktuk Peninsula area. Two quite small frozen samples from Bore Hole 7B (Sample 6) and Bore Hole 15A (Sample 7B) were given to the writer for study. In the summer of 1970, the Geological Survey of Canada, in its survey of the southern Beaufort Sea, cored into fresh water ice lenses about 20 miles north of Cape Bathurst. There is no doubt, therefore, that permafrost is present in the southern Beaufort Sea. Some tentative observations on offshore permafrost are given. ... (Au)

C-21920
Direct shear tests on natural fine-grained permafrost soils / Roggensack, W.D. Morgenstern, N.R.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- , v.1, p. 728-735, figures, tables)
References.
ACU

Laboratory direct shear tests were performed on undisturbed samples of frozen silty clay obtained from near Fort Simpson, N.W.T. ... The results show that with sufficiently slow strain rates, the shear strength of ice-poor, fine-grained frozen soils depends upon normal stress and confirms that they exhibit a definite frictional response. The friction angle determined for the frozen soil corresponded to the effective friction angle obtained when the same material was sheared in a thawed state. ... (Au)

C-21989
Fabrics of icing-mound and pingo ice in permafrost / Gell, W.A.
(Journal of glaciology, v. 20, no. 84, 1978, p. 563-569, ill., figures)
References.
ACU, NFSMO

Crystallization histories of some ice layers in permafrost are inferred from crystal size, shape, dimensional and lattice orientation, and inclusion patterns. In an icing mound, formed by injection of water beneath frozen active-layer soil, early growth was rapid, indicated by copious small crystals and bubbles, followed by slower growth giving rise to crystals and bubbles elongate parallel to the freezing direction. c-axes were normal to crystal long axes. In a small pingo, bulk water existed temporarily at the freezing interface and freezing was unidirectional. In a larger pingo, variations in freezing rate were inferred. Later flow of ice modifies growth fabrics. (Au)

C-21997
Ice-wedge ice, Mackenzie Delta-Tuktoyaktuk Peninsula area, N.W.T., Canada / Gell, W.A.
(Journal of glaciology, v. 20, no. 84, 1978, p. 555-562, ill., figures, map)
References.
ACU, NFSMO

Petrologic analysis was performed on ice-wedge ice in order to investigate changes in fabric across wedges in relation to the growth mechanism. Crystal size increased from the centre outward and strongly preferred dimensional orientations developed parallel to the sides of wedges. ... In massive ice penetrated by an ice wedge, crystal size and complexity of crystal shape decreased toward the wedge, dimensional orientations tended to become parallel to the wedge, and c-axes formed a point maximum normal to the wedge boundary. (Au)

C-24198
Changes in permafrost distribution produced by a migrating river meander in the northern Yukon, Canada / Crampton, C.B.
(Arctic, v. 32, no. 2, June 1979, p. 148-151, figure)
References.
ACU, NFSMO

Drill hole data from the Eagle River crossing by the Dempster Highway near the Arctic Circle have been interpreted on the basis of point bars formed by a migrating meander loop and dated by tree core ring counts. In the wake of the migrating meander loop, two waves of changes in the state of permafrost have penetrated downwards into the ground, associated with a downward migrating and thickening interpermafrost talik layer containing water under pressure. (Au)

C-27987
Growth and decay of palsas and peat plateaus in the Macmillan Pass-Tsichu River area, Northwest Territories, Canada / Kershaw, G.P. Gill, D.
(Canadian journal of earth sciences, v. 16, no. 7, July 1979, p.1362-1374)
(Contribution - Alberta. University. Boreal Institute for Northern Studies, no. 65)
References.
ACU

... Palsa-peat plateau complexes cover 0.7% of the 235 square km study area and are found in bog and fen depressions at elevations from 1285-1690 m. Palsa heights range from 0.15-9.75 m and diameters from 3.25-75.0 m; peat plateaus have maximum heights of 2.5 m and maximum diameters of 225 m. Both features are vegetated by Cladina-Betula gladulosa, Cladina-Polyrichum-Cetraria, and crustose lichens-Polytrichum plant communities. ... (Au)

C-28029
Use of long-term automatic time-lapse photography to measure the growth of frost blisters / van Everdingen, R.O. Banner, J.A.
(Canadian journal of earth sciences, v. 16, no. 8, Aug. 1979, p.1632-1634)
References.
ACU

The use of automatic time-lapse camera systems, taking daily photographs at solar noon between 26 September 1977 and 3 May 1978, has made it possible to determine the time and rate of growth of frost blisters at Bear Rock near Fort Norman, N.W.T. The daily negatives have been printed and refilmed to produce a time-lapse motion picture covering the full 220 day observation period. The use of paired cameras allowed production and viewing of daily stereo pairs. (Au)

C-37206
Upper Mackenzie River valley / Chatwin, S.C. Rutter, N.W.
s.l. : s.n., 1978.
53p. : ill., maps ; 22cm.
(Field trip guidebook - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, no. 2)
References.

Describes features to be noted on a seven-day field trip Yellowknife-Fort Providence-Fort Simpson-Nahanni-Wrigley and Norman Wells. Covers the geological and glacial histories of the areas emphasizing ground-ice occurrence. Engineering and construction problems associated with permafrost in an urban environment, an underground mining operation, and an oil refinery facility are illustrated. (ASTIS)

C-37214
Lower Mackenzie River valley / Heginbottom, J.A.
s.l. : s.n., 1978.
66p. : ill., maps, photos. ; 22cm.
(Field trip guidebook - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978, no. 3)
Appendices.
References.

The objective of this field trip is to illustrate the occurrence of permafrost and ground ice and to examine man's response to these phenomena in northwestern Canada in general and in the Mackenzie Delta region in particular. The trip comprises two parts: 1) an aerial transect ... from Yellowknife, N.W.T. to the arctic coast at Tuktoyaktuk, and 2) more detailed coverage of the Mackenzie Delta region, including visits to numerous sites illustrative of the principal elements of the landscape of the continuous permafrost zone. ... This guidebook has been written as a general introduction to the region, with more detailed sections covering the localities at which ground tours will be made. ... (Au)

C-38830
The behavior of thawing slopes in permafrost / Pufahl, D.E.
Ottawa : National Library of Canada, 1977.
4 microfiches : ill., maps, photos. ; 10.5x14.8cm.
(Canadian theses on microfiche, no. 30799)
Thesis (Ph.D.) - University of Alberta, Edmonton, Alberta, 1976. - xxii, 323p.
Appendices.
Bibliography: p.227-235.
ACU

... A field reconnaissance has established the state-of-the-art of cut slope design, construction and performance in the western Canadian Arctic and Alaska. ... Emphasis has been placed on establishing the geological history, the land form, and the associated soil and ground ice characteristics. Flow dominated failures on natural slopes and cut slopes are common in regions of permafrost. A means of stabilizing these failures is proposed. ... Design charts are provided and recommendations for installation are included. ... Recommendations for the design and construction of cut slopes in frozen soils are outlined. (Au)

C-39616
Geotechnical properties of fine-grained permafrost soils / Roggensack, W.D.
Ottawa : National Library of Canada, 1977.
5 microfiches : ill., maps, photos. ; 10.5x14.8cm.
(Canadian theses on microfiche, no. 32058)
Thesis (Ph.D.) - University of Alberta, Edmonton, Alberta, 1977. - xxiii, 449p.
Appendices.
Bibliography: p.330-346.
ACU

This thesis describes a laboratory study conducted on samples of undisturbed, fine-grained permafrost in soil. Specimens were obtained from sampling sites located near Fort Simpson, Norman Wells, and Inuvik, N.W.T., Canada. Both frozen and thawed soils were tested to explore fundamental behaviour and assess typical geotechnical properties. ... Transient and steady state deformation processes were identified in creep tests performed on the same soil, and analytical techniques used to assess and present the data have been described. ... Site investigation techniques in permafrost terrain have been discussed and recommendations pertaining to improving existing practice are presented. (Au)

C-49956
Permafrost mapping by audiofrequency magnetotellurics / Koziar, A. Strangway, D.W.
(Canadian journal of earth sciences, v. 15, no. 10, Oct. 1978, p.1539-1546, figures)
"Paper presented at the Canadian Geophysical Union Symposium on Permafrost Geophysics at the Annual Meeting of the Geological Association of Canada, Waterloo, Ont., May 15-17, 1975."
References.
ACU

The audiofrequency magnetotelluric (AMT) method has been used to study permafrost thickness near Tuktoyaktuk, N.W.T. in the Mackenzie Delta. In the frequency range of 10 Hz-10 kHz the permafrost behaves as a simple resistive layer over a conductive layer. This simple two-layer model can be inverted by asymptotic models to give a unique value for the thickness of the highly resistive frozen layer. In areas of simple layering, these results correlate well with drilling. In areas of sharp lateral variations in resistivity, depths tend to be underestimated. Unlike other electrical methods, AMT is not hampered by the presence of a surface melt layer in the summer if the conductivity-thickness product of this 'active layer' is less than about 0.03 mho (0.03S). (Au)

C-50610
The origin of hummocks, western arctic coast, Canada / Mackay, J.R.
(Canadian journal of earth sciences, v. 17, no. 8, Aug. 1980, p. 996-1006, ill., figures, photos.)
References.
ACU

... The hummocks under discussion are composed of fine-grained frost-susceptible soils; the late summer frost table is bowl-shaped; and the hummocks grade from those which are completely vegetated (earth hummocks) to those with bare centres (mud hummocks). The mound form is usually attributed to an upward displacement of material resulting from cryostatic (freeze-back) pressure generated in a confined, wet, unfrozen pocket of the active layer. ... Field observations carried out at Garry Island, Northwest Territories, for 1965-1979 and for 1967-1979 at Inuvik, Northwest Territories ... provide no field evidence for the cryostatic theory. An alternative model of hummock growth ... is here proposed. The upward displacement of material is believed caused by freeze-thaw of ice lenses at the top and bottom of the active layer with a gravity-induced cell-like movement, because the top and bottom freeze-thaw zones have opposite curvatures. The cell circulation is evident from the grain-size distribution of hummock soils and from upward-moving tongues of saturated soil observable in late summer. ... Model experiments in the laboratory have been successful in producing mounds by freeze-thaw of a kaolin slurry in a bowl-shaped container in support of the proposed theory. (Au)

C-57509
The energetics of an ablating headscarp in permafrost / Pufahl, D.E. Morgenstern, N.R.
(Canadian geotechnical journal, v. 17, no. 4, Nov. 1980, p. 487-497, figures, table)
References.
ACU

In arctic regions mass movements in thawing permafrost are common. Although different types of landslides have been identified, one type referred to as a "bimodal flow" has caused a significant amount of interest on account of the unusually high rate of mass wasting associated with this type of flow slide. The flow is characterized by a steep headscarp and a low angle mud flow or tongue at the base of the slide. Although more than one activity contributes to the retreat of the headscarp, the most important process is that of ablation ... The components of the energy balance were identified and a field study was undertaken to quantify these terms. ... The results of this study indicate that all the major terms in the energy balance equation combined to form the source of heat responsible for the high rates of observed ablation. Moreover, they provide a rational basis for controlling bimodal flow slides using different insulation materials. (Au)

C-57517
A first approximation of the volume of ground ice, Richards Island, Pleistocene Mackenzie delta, Northwest Territories, Canada / Pollard, W.H. French, H.M.
(Canadian geotechnical journal, v. 17, no. 4, Nov. 1980, p. 509-516, figures, tables)
References.
ACU

Using data contained in the Mackenzie Valley Geotechnical Data Bank together with data derived from morphometric analyses of topographic maps and air photographs, the volume of ground ice present in the upper 10 m of Richards Island is calculated to be 10.27 cubic km. Pore and segregated ice constitute over 80% of the total ice volume. Wedge ice constitutes between 12 and 16% of total ice volume in the upper 4.5 m, and approximately 36% of all excess ice. In the upper 1-2 m, wedge ice may exceed 50% of earth materials. Pingo ice is insignificant in terms of its contribution to total ice volumes. Excess ice constitutes 14% of the upper 10 m of permafrost; it follows that thawing of this layer of permafrost may lead to an average subsidence of 1.4m. (Au)

C-59374
Radiohm mapping of permafrost / Powell, B.W.
Ottawa : National Library of Canada, 1978.
3 microfiches : ill., figures, tables ; 10.5x14.8cm.
(Canadian theses on microfiche, no. 39772)
Thesis (M.Sc.) - McGill University, Montreal, 1978. - x, 161p.
Appendices.
References.: p.151-161.
ACU

Radiohm surveys were carried out at ... Ft. Simpson, Norman Wells and Tuktoyaktuk. These sites represent areas of: 1) discontinuous permafrost, 2) thin continuous permafrost and, 3) thick continuous permafrost, respectively. A solution for electromagnetic plane waves propagating over horizontal stratified ground is used in determining the distribution and thickness of the permafrost. ... The various problems which are peculiar to permafrost surveys are discussed. ... Comparisons between the Radiohm interpretation and the control information were generally favourable. (Au)

C-61336
The use of hydraulic drilling methods to study offshore bottom permafrost / MacAulay, H.A. Symposium on Permafrost Field Methods, 3 October, 1977, and Permafrost Geophysics, 4 October, 1977, Saskatoon, Canada.
(Proceedings - Symposium on Permafrost Field Methods, 3 October 1977, and Permafrost Geophysics, 4 October 1977, Saskatoon, Canada / Prepared by W.J. Scott and R.J.E. Brown. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 124, 1979, p. 25-30, figures)
References.
ACU

Hydraulic water-jet drilling has been used extensively for water well drilling in non-permafrost areas and to some extent for shallow drilling in areas of discontinuous permafrost .... The jetting procedure simply involves directing the discharge of the pump through the pipe string. As material is loosened by the jetting action the pipe is advanced. The material loosened is carried upwards around the outside of the pipe by the rising flow of water and is expelled at the sea floor. When the projected depth, usually 61 m (200 ft), was reached or refusal met, the 2.5 cm (one inch) pipe was left in place as casing for the installation of a thermistor cable. ... (Au)

C-61379
Gas seeps, permafrost and acoustic voids in the southern Beaufort Sea / O'Connor, M.J. Symposium on Permafrost Field Methods, 3 October, 1977, and Permafrost Geophysics, 4 October, 1977, Saskatoon, Canada.
(Proceedings - Symposium on Permafrost Field Methods, 3 October 1977, and Permafrost Geophysics, 4 October 1977, Saskatoon, Canada / Prepared by W.J. Scott and R.J.E. Brown. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 124, 1979, p. 73-100, figures)
References.
ACU

... The Beaufort-Delta survey was intended as a preliminary step to assess the performance, reliability and applicability of various investigative procedures, to provide additional correlation among existing data, and to identify conditions which might require more detailed examination during subsequent investigations. ... This paper deals with some anomalous features encountered along two ... lines - north of Richards Island - along the Pullen Corridor, and north of Tuktoyaktuk, along the Kugmallit Corridor. (Au)

C-61395
Permafrost in the Mackenzie Delta : a detailed study around the SUN BVX et al UNARK L-24A wellsite / Card, J.D. Symposium on Permafrost Field Methods, 3 October, 1977, and Permafrost Geophysics, 4 October, 1977, Saskatoon, Canada.
(Proceedings - Symposium on Permafrost Field Methods, 3 October 1977, and Permafrost Geophysics, 4 October 1977, Saskatoon, Canada / Prepared by W.J. Scott and R.J.E. Brown. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 124, 1979, p. 125-145, figures)
References.
ACU

A ... study was carried out ... to investigate permafrost in the vicinity of an exploratory well drilled in the Mackenzie Delta area of Northern Canada. The study served two purposes. ... to confirm a model of the permafrost regime; a model which assumed a degrading environment with permafrost thinning by melting on both top and bottom surfaces. ... [and] to confirm that permafrost is not constant across the study area .... This paper will describe the techniques and results of the study and include discussion of the permafrost model. ... (Au)

C-61409
Permafrost determination by seismic velocity analyses / Hatlelid, W.G. MacDonald, J.R. Symposium on Permafrost Field Methods, 3 October, 1977, and Permafrost Geophysics, 4 October, 1977, Saskatoon, Canada.
(Proceedings - Symposium on Permafrost Field Methods, 3 October 1977, and Permafrost Geophysics, 4 October 1977, Saskatoon, Canada / Prepared by W.J. Scott and R.J.E. Brown. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 124, 1979, p. 146-167, figures)
References
ACU

In the Mackenzie Delta and Beaufort Sea, velocity analyses of seismic refraction and reflection data have proven by far the most accurate method for determining presence, depth to top, and thickness of permafrost. Seismic refraction will indicate permafrost and the depth to its top, while velocity analyses of reflection data will determine its thickness. (Au)

C-61417
Offshore permafrost distribution in the Beaufort Sea as determined from temperature and seismic observations / Neave, K.G. Judge, A.S. Hunter, J.A.M. Symposium on Permafrost Field Methods, 3 October, 1977, and Permafrost Geophysics, 4 October, 1977, Saskatoon, Canada.
(Proceedings - Symposium on Permafrost Field Methods, 3 October 1977, and Permafrost Geophysics, 4 October 1977, Saskatoon, Canada / Prepared by W.J. Scott and R.J.E. Brown. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 124, 1979, p. 168-182, figures)
References.
ACU

For long periods of time during the Pleistocene, part of the Beaufort Sea continental shelf was exposed to subzero air temperatures and, as a consequence, permafrost grew in the sediments to a thickness in excess of 600 m. These conditions are reflected today in the ice bonded sediments which are found over a large percentage of the shelf area. The extent of ice bonded sediments is determined by analyzing the "front ends" of oil industry reflection records in terms of refracted arrivals. ... (Au)

C-63673
Energy budget studies in the Arctic over areas subjected to different levels of vehicular activity - 1972-73 / Beattie, C.A. Erickson, D. Martin, A. Gray, D.M.
[Ottawa] : DIAND, [1973].
iv, 32p. : ill., figures ; 28cm.
([Report] - Canada. Arctic Land Use Research Program, ALUR 72-73- 21)
(Report - Canada. Task Force on Northern Oil Development, no. 73- 23)
References.
ACU, SSU

During 1972/73 a series of studies was initiated at Tununuk, N.W.T., to evaluate the energy budget over disturbed and undisturbed terrain and to determine the validity of an energy budget approach to investigation of terrain sensitivity. More specifically, the studies were intended to establish a methodology for the measurement of energy budget components, to provide information on the relative magnitudes and importance of the component energy terms and to investigate possible relationships between energy budget component terms and the tundra disturbance classification system proposed by the Muskeg Research Institute (1970). ... The results show that disturbance levels on the Muskeg Research Institute proposed terrain disturbance classification system are closely related to the albedo term .... (Au)

C-68225
Soil stabilization for protection of sea-bed structures from ice scour / Morgenstern, N.R. Sterne, K.
Edmonton : Boreal Institute for Northern Studies, 1980.
1v. (various paging) : ill. ; 28cm.
References.
NFSMO

One of the major problems to be considered in the design of pipelines and drilling platforms in the Beaufort Sea is the damage that can result from ice scouring. ... It was thus decided to conduct a laboratory investigation to determine whether the sea bed in the vicinity of such structures could be stabilized by in-situ mixing of the sea bed sediments with cement to a degree sufficient to offer substantial resistance to ice forces. ... The preliminary laboratory work that was carried out is described in this report. In addition, problems of ice scouring and the formation of pressure ridges were reviewed from the available literature. Finally, the results of the laboratory work are discussed and proposals for further research outlined. ... (Au)

C-73733
Analysis of synergistic systems for evaluating terrain sensitivity to disturbance of icy permafrost in the Mackenzie River valley, Canada / Crampton, C.B.
(Biuletyn peryglacjalny, no. 28, 1981, p. 15-31, ill., figures, tables)
References.
ACU

An extensive land classification for the Mackenzie River valley has been combined with an analysis of synergistic systems, to quantify field units for a more comprehensive terrain evaluation than could have been produced by either field or analytical work alone. The empirical prediction of ice content and its distribution within different environments has been used with field data to develop a classification for sensitivity of the landscape to damage from disturbance. The zone of most rapidly changing sensitivity which occurs around Fort Norman and Norman Wells as the Discontinuous merges into the Continuous Permafrost Zone has been quantified. (Au)

C-75965
Aklisuktuk (Growing Fast) Pingo, Tuktoyaktuk Peninsula, Northwest Territories, Canada / Mackay, J.R.
(Arctic, v. 34, no. 3, Sept. 1981, p. 270-273, figures, table)
References.
ACU, NFSMO

Field surveys have been carried out for the 1972 to 1979 period in order to study the growth of Aklisuktuk (Growing Fast) Pingo. The field surveys show that the top of the pingo was slowly subsiding during the seven-year survey period, possibly from a slow downslope glacier-like creep of the ice-rich overburden and ice core. The name "Aklisuktuk" probably dates back at least 200 years. The rapid growth which attracted attention was from accumulation of water in a large sub-pingo water lens. (Au)

C-79937
Active layer slope movement in a continuous permafrost environment, Garry Island, Northwest Territories, Canada / Mackay, J.R.
(Canadian journal of earth sciences, v. 18, no. 11, Nov. 1981, p.1666-1680, figures, tables)
References.
ACU

Field investigations have been carried out at Garry Island, N.W.T. ... to study downslope active layer movement at sites with two-sided (downward and upward) freezing and active ice-wedge growth. Movements have been determined with reference to semi-flexible plastic tubes inserted vertically into the ground and by deformation of lines of stakes. The results show that the vertical velocity profile on the hillslopes with clayey hummocks is convex downslope; the movement is plug-like and occurs in the late summer; the plug-like movement progressively buries the interhummock peat to form a buried organic layer; and most of the plug-like movement can be attributed to frost creep by thaw of an ice-rich layer at the bottom of the active layer. The ice-rich layer forms by upfreezing in winter and the ice content may be augmented by ice lensing in the summer thaw period. In a sedgy drainage swale, the vertical velocity profile is concave downslope. The active layer of ice-wedge polygons shows a net movement outwards from the centres to the troughs. These studies show that active layer movement at sites with two-sided freezing and active ice-wedge polygons may differ substantially from sites with only one-sided freezing and without active ice-wedge polygons. (Au)

C-83194
Proceedings - Symposium on Permafrost Geophysics, 5th, Calgary, 13-14 November, 1978 / Symposium on Permafrost Geophysics, 5th, Calgary, 13-14 November, 1978. Scott, W.J. Brown, R.J.E. Canada. National Research Council. Associate Committee on Geotechnical Research. Permafrost Subcommittee.
Ottawa : National Research Council, 1980.
iv, 170p. : ill., figures, tables ; 28cm.
(Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 128)
References.
ACU

This publication contains fifteen papers presented at the Symposium. The first four concern studies on the lake drainage experiment conducted on Richards Island, N.W.T. and the consequent permafrost studies being carried out. The balance of the papers discuss geophysical exploration of permafrost, and engineering problems, such as thawing along pipeline installations. (ASTIS)

C-83860
Soils engineering report : Beaufort Sea, area N.W. of Richards Island / Cook, Pickering and Doyle Limited. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1973.
2 microfiches : ill., tables ; 11x16cm.
(APOA project no. 110 : Conical and cylindrical gravity structures for southern Beaufort Sea. Report, no. 2)
Appendices.
References.
ACU, NFSMO

Preliminary design of removable drilling platforms for use in the Beaufort Sea showed that the thrust of winter ice during windstorms, would cause a major problem with respect to lateral stability. After reviewing the available test data on the soils of the sea bottom, it was concluded that the soil strength had not proved strong enough to resist the ice loads on a platform. However, it was concluded that adequate strength could be anticipated if additional sampling and testing were done. This report describes an expedition to the site, field sampling and laboratory studies, to obtain the additional information. The results of the extensive sampling and laboratory work show that the Conceptual Design of a Monopod ... is viable with regard to the foundation conditions. (Au)

C-87947
The undrained strength of some thawed permafrost soils / Nixon, J.F. Hanna, A.J.
(Canadian geotechnical journal, v. 15, no. 2, May 1979, p. 420-427, figures)
References.
ACU

A large number of undrained shear strengths have been measured for thawed, undrained permafrost samples obtained from the Niglintgak Peninsula area of the Mackenzie Delta, N.W.T. The samples are mostly deltaic silts, with a few clay tills, and cover a wide range of depths, water contents, and frozen density. The undrained shear strengths of the thawed samples have been correlated with water content, frozen density, and sample depth. For these soil types, the strength is shown to decrease to zero at frozen densities of less than about 1670 kg/cubic metres and at water contents greater than about 35-42%. In the Niglintgak area, the undrained shear strength of the thawed samples below a depth of 10 m becomes relatively constant in the range of 23-43 kPa. This corresponds to a frozen density range of 1780-1870 kg/cubic metres, and previous experience with soils of this nature indicates that the corresponding thaw settlement at these depths would be less than 10%. (Au)

C-98850
Analysis of some stratigraphic observations and radiocarbon dates from two pingos in the Mackenzie Delta area, N.W.T. / Muller, F.
(Arctic, v. 15, no. 4, Dec. 1962, p. 279-288, ill., figures, table)
ACU

C-99376
Some observations on permafrost distribution at a lake in the Mackenzie Delta, N.W.T., Canada / Johnston, G.H. Brown, R.J.E.
(Arctic, v. 17, no. 3, Sept. 1964, p. 163-175, ill., figures)
ACU

C-99422
The characteristics of some permafrost soils in the Mackenzie valley, N.W.T. / Day, J.H. Rice, H.M.
(Arctic, v. 17, no. 4, Dec. 1964, p. 223-236, figure, tables)
(Contribution - Canada. Soil Research Institute, no. 93)
ACU

C-99708
The microbiology of some permafrost soils in the Mackenzie valley, N.W.T. / Ivarson, K.C.
(Arctic, v. 18, no. 4, Dec. 1965, p. 256-260, tables)
(Contribution - Canada. Soil Research Institute, no. 149)
ACU

C-100056
Permafrost depths, lower Mackenzie Valley, Northwest Territories / Mackay, J.R.
(Arctic, v. 20, no. 1, Mar. 1967, p. 21-26, figures)
ACU

C-101524
Studies of soil microorganisms, Inuvik, Northwest Territories / Boyd, W.L. Boyd, J.W.
(Arctic, v. 24, no. 3, Sept. 1971, p. 162-176, ill., figure, tables)
ACU

C-101834
Thermal contraction cracks in an arctic tundra environment / Kerfoot, D.E.
(Arctic, v. 25, no. 2, June 1972, p. 142-150, ill., figures, map)
ACU

C-102814
Linear-patterned slopes in the discontinuous permafrost zone of the central Mackenzie River Valley / Crampton, C.B.
(Arctic, v. 27, no. 4, Dec. 1974, p. 265-272, ill., figures, table)
ACU

C-103195
Soils of the subarctic in the lower Mackenzie Basin / Pettapiece, W.W.
(Arctic, v. 28, no. 1, Mar. 1975, p. 35-53, figures, tables)
ACU

C-108391
Mackenzie Delta - Beaufort Sea development plan : permafrost response study nearshore & onshore pipeline geothermal analysis / EBA Engineering Consultants Limited.
[S.l.] : EBA Engineering Consultants Ltd., 1981.
1 microfiche : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWT02)
References.
ACU

This report presents the results of a study of the geothermal interaction between a subsea oil pipeline and surrounding permafrost soil. The pipeline is intended to carry oil from offshore production islands in the Beaufort Sea to a pipeline terminal on Richards Island in the Mackenzie Delta. The pipeline will be operated at a temperature greater than 0 degrees C which will introduce into the design the risk of instability due to thaw of permafrost supporting soils. ... The study documented in this report is intended to provide a preliminary estimate of the extent of thaw that may occur during the operating lifetime of the buried pipeline for both the shallow water offshore and onshore conditions. ... All geothermal analyses were conducted using a finite element geothermal simulation model developed at EBA. The model calculates transient heat conduction in soil of variable composition, accounts for latent heat of fusion within the soil, and heat exchange at the ground surface. Ground surface heat exchange is computed from meteorological data such as air temperature, solar radiation, greenhouse factor, wind velocity, snow depth and evapotranspiration. ... (Au)

C-108650
[Report on some of the geotechnical aspects of pipeline operations for the proposed Beaufort Sea - Mackenzie Delta hydrocarbon development] / Smith (M.W.) Geosciences Ltd. Smith, M.W. Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea [Sponsor].
Chelsea, Que. : M.W. Smith Geosciences Ltd., 1983.
14 leaves ; 28 cm.
(Beaufort E.I.S. technical specialist report)
Appendices.
References.
ACU

The proponents ... were directed to prepare an ... (E.I.S.), to include consideration of effects of permafrost (on land and beneath the sea) and terrain conditions on various aspects of construction. [The main subject of this review deals with the geothermal terrain problems arising from the presence of permafrost.] This report deals mainly with the pipeline aspects of the proposal. ... (Au)

C-111082
Oxygen isotopic composition of the ground ice in the permafrost / Kato, K. Fukuda, M. Fujino, K.
(Journal - Japanese Society of Snow and Ice, v. 44, no. 3, Sept. 1982, p. 131-139, ill., figures)
References.
Summary in English.
Text in Japanese.
ACU

In order to clarify the stable isotope characteristics of the ground ice bodies such as polygons, ice wedges, pingos and massive ices in the permafrost, the oxygen isotopic composition was determined for ground ice samples collected at Barrow, Alaska and Tuktoyaktuk, Mackenzie Delta, North Canada, and was discussed with special references to the formation process and the origin of water of these ground ice bodies. The ground ice bodies showed their characteristic oxygen isotopic compositions originated from their formation process and origin of water. Of course, even in the same kind of ground ice bodies, each ice body showed different oxygen isotopic compositions, which are due to the difference of the water body. It was indicated that the stable isotope characteristics of the ground ice bodies may regionally differ. The formation process as well as the origin of water may regionally differ even among the same kind of ground ice bodies. A thought presented in this study for the stable isotope fractionation accompanied by the movement of water during frost heaving was confined with the actual findings. (Au)

C-111783
Permafrost mapping over a drained lake by electromagnetic induction methods / Sinha, A.K. Stephens, L.E.
(Paper - Canada. Geological Survey, 83- 1A, p. 213-220, figures)
References.
ACU

A field investigation using two portable electromagnetic induction systems was carried out over a frozen drained lake basin at Illisarvik, 60 km west of Tuktoyaktuk, N.W.T., to map the growth of permafrost beneath the lake. The two instruments, with depth sounding capabilities of from 6 m to 60 m were used in a 300 x 600 m grid with readings taken every 25 m. Contour maps of measured apparent conductivity values, obtained for different coil separations and coil attitudes, indicated the presence and extent of permafrost and unfrozen material at different locations in the grid. The field data were also interpreted quantitatively along three lines 50 m apart to determine the thickness of the frozen upper layer. The interpretation indicates that the thickness of the permafrost varies from 11 to 23 m in the central part of the lake with greater values toward the shoreline. These values of permafrost thickness agree well with results from thermal measurements in several boreholes in the area. (Au)

C-112321
Downward water movement into frozen ground, western Arctic coast, Canada / Mackay, J.R.
(Canadian journal of earth sciences, v. 20, no. 1, Jan. 1983, p. 120-134, figures, tables)
References.
ACU

Field studies carried out mainly since 1975 in permafrost areas of Alaska, Canada, China, and the Soviet Union have been combined with the results of laboratory investigations to show that in summer water can move from the thawing active layer into the subjacent frozen active layer and under certain conditions even into the top of permafrost. Direct evidence discussed includes: data from drilling and neutron probe logging, which show a summer increase in the ice content of already frozen ground; summer heave of heavemeters, with heave occurrring in the frozen active layer; and increase in the ice content of the subjacent frozen ground in both permafrost and non-permafrost areas, caused by snowmelt infiltration. Indirect field and laboratory evidence is also added to support the direct lines of evidence. The conditions that favor the downward migration of water from thawed to frozen ground are examined in terms of thermally induced hydraulic gradients, hydraulic conductivity, content of unfrozen pore water, temperature gradients, ice content, and gravity. Some geocryologic implications of the summer growth of ice in frozen ground, including the effects on water balance calculations and the origin of patterned ground, are briefly mentioned. (Au)

C-114111
Reconnaissance of vegetation and soils along the Dempster Highway, Yukon Territory : II. Soil properties as related to revegetation / Pacific Forest Research Centre. Stanek, W. Canada. Environment Canada [Sponsor]. Foothills Pipe Lines (Yukon) Ltd. [Sponsor].
Victoria, B.C. : Pacific Forest Research Centre, 1982.
28 p. : ill., figures, maps (2 folded), tables ; 28 cm.
ISBN 0-662-12259-3
Appendices.
References.
ACU

This report complements the reconnaissance of vegetation (Stanek et al. 1981) along 450 km of the Dempster Highway from North Fork Pass in the Ogilvie Mountains, Yukon Territory, to the Peel River, Northwest Territories. The pH and content of major nutrient elements (N,P,K,Ca, and Mg) were determined on soil samples collected from 100 plots along the Dempster Highway in the Yukon Territory. Information was obtained on depth to permafrost in September, generic soil types, thickness of the organic horizons, and slope. The survey indicated that mainly Static and Turbic Cryosols, intermixed with Regosols and sporadic Brunisols, occur in this area. The mapping at a scale of 1:250,000 utilized three major groups of soils according to the pH of their organic layers. The report contains data on some soil properties as related to vegetation and is aimed primarily at providing information for revegetation projects and ecological inventories. (Au)

C-115177
Arctic underpinnings : permafrost.
(Permafrost/Pergelisol. Science dimension, v. 14, no. 5/6, 1982, p. 8-15, ill.)
Text in English and French.
ACU

This article describes the history of permafrost research in Canada, which has enabled engineers to make great strides in both on-shore and off-shore projects in the north. (ASTIS)

C-120359
Pingos of the Tuktoyaktuk Peninsula area, Northwest Territories / Mackay, J.R.
(Geographie physique et Quaternaire, v. 33, no. 1, 1979, p. 3-61, figures, table)
References.
ACU

Most pingos have grown in residual ponds left behind by rapid lake drainage through erosion of ice-wedge polygon systems. The field studies (1969-78) have involved precise levelling of numerous bench marks, extensive drilling, detailed temperature measurements, installation of water pressure transducers below permafrost and water (ice) quality, soil, and many other analyses. Precise surveys have been carried out on 17 pingos for periods ranging from 3 to 9 years. ... (Au)

C-121509
Ground temperature studies of permafrost growth at a drained lake site, Mackenzie Delta / Burgess, M. Judge, A. Taylor, A. Allen, V.
(The Roger J.E. Brown memorial volume : proceedings of the Fourth Canadian Permafrost Conference, Calgary, Alberta, March 2-6, 1981 / Edited by H.M. French. NRCC - Canada. National Research Council, no. 20124, 1982, p. 3-11, figures)
References.
ACU

Illisarvik lake on Richards Island, Mackenzie Delta, Canada, was artificially drained in order to investigate the growth of permafrost. Twenty-four boreholes were hydraulically drilled to depths ranging from 15 to 92 m below lake level and were instrumented with temperature cables. Monitoring of ground temperatures beneath the lake and surrounding shore-lines prior to drainage delineated a bow-shaped talik extending up to 32 m below lake bottom. Characteristics of the predrainage temperature profiles in the central lake holes were (i) an upper unfrozen horizon in which temperatures reached a maximum of 2.5 degrees C at roughly 5 m below lake bottom, (ii) a permafrost table at depths of 20 to 32 m in the central part of the lake with consistently negative temperatures below, and (iii) negative temperature gradients below the 5 m maximum temperature, averaging 50 mk/m in the permafrost section. Two years of post-drainage temperature monitoring revealed (iv) that the former talik had completely frozen at nearshore sites (10 m thick or less), whereas, (v) only 5 to 6 m of new permafrost had formed at central sites, and (vi) in the unfrozen sections temperatures were close to 0 degrees C. A two-dimensional finite element computer simulation of the formation and growth of Illisarvik suggests a minimum lake age of 900 to 1000 years. Post-drainage conditions in the first year after drainage were modelled by studying the microclimatic regime together with the ground thermal regime. Although predicted profiles agreed well with measured temperatures, geotechnical and year-round weather gathering programmes are necessary before further post-drainage modelling is warranted. (Au)

C-121568
Ground ice stratigraphy and late-Quaternary events, south-west Banks Island, Canadian Arctic / French, H.M. Harry, D.G. Clark, M.J.
(The Roger J.E. Brown memorial volume : proceedings of the Fourth Canadian Permafrost Conference, Calgary, Alberta, March 2-6, 1981 / Edited by H.M. French. NRCC - Canada. National Research Council, no. 20124, 1982, p. 81-90, figures, table)
References
ACU

The stratigraphic study of pingos and ice wedges on south-west Banks Island indicates a period of continuous permafrost aggradation in late Quaternary times interrupted by a temporary period of deeper seasonal thaw in the mid-Holocene. Both epigenetic and small syngenetic ice wedges are exposed in coastal bluffs south-east of Sachs Harbour. Within the Sachs and Kellett River catchments, radiocarbon dating suggests that a number of collapsed and partially eroded pingos are relict features related to a period of climatic deterioration which commenced approximately 4000 years B.P. The stratigraphic study of ground ice is thought to be a useful method of geomorphological and paleoenvironmental reconstruction, especially in areas which have experienced extended histories of cold, non-glacial conditions. (Au)

C-121649
Significance of isotope variations in permafrost waters at Illisarvik, N.W.T. / Michel, F.A. Fritz, P.
(The Roger J.E. Brown memorial volume : proceedings of the Fourth Canadian Permafrost Conference, Calgary, Alberta, March 2-6, 1981 / Edited by H.M. French. NRCC - Canada. National Research Council, no. 20124, 1982, p. 173-181, figures, table)
References.
ACU

Analyses for oxygen-18 and 2H contents in permafrost cores from the Mackenzie River basin revealed very large depletions in the heavy isotope contents with depth. These shifts could be reflection of decaying climatic conditions resulting in lower 180 and 2H contents in older ice or, under special circumstances, might be due to isotope fractionation processes occurring during freezing. Thus, as part of a detailed study of permafrost growth at the drained lake site known as Illisarvik on Richards Island in the Mackenzie Delta, a number of continuous cores were collected from within, and adjacent to, the lake bed. Water extracted from the samples by squeezing was analyzed for oxygen-18, 2H, and 3H isotopic contents in addition to conductivity. The soils were examined for grain size and moisture content, while organic-rich horizons were dated using the radiocarbon method. Radiocarbon dating of the lake-bed sediments indicate that the lake initially formed some 6700 to 8700 years ago. ... The results of this and other ongoing studies into the distribution of stable and radioactive isotopes occurring naturally in waters related to permafrost indicate that such investigations provide valuable insight into the history and origin of these waters. (Au)

C-121703
Detailed seismic refraction analysis of ice-bonded permafrost layering in the Canadian Beaufort Sea / MacAulay, H.A. Hunter, J.A.
(The Roger J.E. Brown memorial volume : proceedings of the Fourth Canadian Permafrost

Conference, Calgary, Alberta, March 2-6, 1981 / Edited by H.M. French. NRCC - Canada. National Research Council, no. 20124, 1982, p. 256-267, figaures)
References.
ACU

The recent application of high-resolution, multi-channel, seismic reflection techniques in the Canadian Beaufort Sea has yielded better sources of data for refraction interpretation of ice-bonded subsea permafrost. This paper discusses some examples of this work which demonstrate the structural detail which can be obtained. A seismic line transecting the Beaufort Sea shelf has been interpreted with data spacings of 125 m. The results confirm early results of Hunter et al. (1978) and show detailed structural and velocity variations of ice-bonded zones. Detailed seismic results at two off-shore drill sites have been examined. Velocity variations indicate optimum zones where ice-content is low or absent suggesting that such detailed refraction surveying can be of use in geotechnical site evaluations. (Au)

C-121711
Some seismic, electrical, and thermal properties of sub-seabottom permafrost from the Beaufort Sea / King, M.S. Pandit, B.I. Hunter, J.A. Gajtani, M.
(The Roger J.E. Brown memorial volume : proceedings of the Fourth Canadian Permafrost Conference, Calgary, Alberta, March 2-6, 1981 / Edited by H.M. French. NRCC - Canada. National Research Council, no. 20124, 1982, p. 268-273, figures, table)
References.
ACU

Ultrasonic compressional and shear-wave velocities, complex resistivity and phase-angle relationships, and thermal conductivity have been measured in the laboratory at sub zero temperatures on subseabottom samples of sand, silt, and clay permafrost recovered from the Beaufort Sea. The physical properties of the off-shore permafrost samples are similar to those measured on similar samples of onshore permafrost recovered from the Mackenzie River; the slight differences observed are attributed to the slightly saline pore fluid solutions contained in the off-shore permafrost. The compressional-wave velocities measured in the laboratory agree well with those inferred from seismic and temperature surveys conducted in the same areas as those from which the test samples were obtained. In view of the generally higher temperatures observed in permafrost off-shore than on-shore, it is concluded that more measurements are required of the physical properties of off-shore permafrost in the critical temperature range -2 to 1 degree C. (Au)

C-121720
Field and laboratory acoustic testing of frozen soils / Fransham, P.B. Unrau, J.D. Reesor, S.N.
(The Roger J.E. Brown memorial volume : proceedings of the Fourth Canadian Permafrost Conference, Calgary, Alberta, March 2-6, 1981 / Edited by H.M. French. NRCC - Canada. National Research Council, no. 20124, 1982, p. 274-282, figures)
References.
ACU

Research was undertaken to investigate the compressional wave velocities in frozen soils. Samples were obtained during two consecutive field seasons from Illisarvik Lake, N.W.T. Compressional wave velocities were measured on cores in the field using portable ultrasonic testing equipment. Velocity measurements were made at a single temperature and, hence, yielded a single point on a velocity versus temperature curve. Grain-size and moisture content tests serve as a base for intepreting wave velocities. Velocities obtained from field surveys show a strong correlation with those obtained from laboratory measurements. This suggests that one should be able to differentiate ice-rich from ice-poor zones, and, hence, obtain an impression of the spatial distribution of the ground ice. Compressional wave velocities have also been measured on a series of kaolinite and sand mixtures. Kaolinite to silica sand mixtures were made in the following ratios; 1.0, .75, .50, .25, and 0. Water contents ranged from 3 to 45 per cent. The samples were compacted using the modified Proctor method. The results show a strong dependence of velocity on moisture content, the proportion of sand to clay, and the bulk density. (Au)

C-121835
Borehole creep and relaxation tests in ice-rich permafrost / Ladanyi, B.
(The Roger J.E. Brown memorial volume : proceedings of the Fourth Canadian Permafrost Conference, Calgary, Alberta, March 2-6, 1981 / Edited by H.M. French. NRCC - Canada. National Research Council, no. 20124, 1982, p. 406-415, figures, tables)
Reviewed by document number 121843
References.
ACU

... Borehole relaxation tests are the alternative to borehole creep tests in the determination of the creep parameters of frozen soils. Their advantage is that the strain is controlled and the stress variation observed, so that there is no danger of exceeding the volume capacity of the cell. Consequently, borehole relaxation tests can easily cover the area of low stresses and can be performed for long periods of time. The question arises, however, whether the creep parameters deduced from creep and relaxation tests, respectively, are equivalent. A field study, carried out recently at a permafrost site near Inuvik, N.W.T., attempted to answer this question and the principal results of that study are discussed. (Au)

C-121959
Thaw subsidence analysis for multiple wells on a gravel island / Goodman, M.A.
(The Roger J.E. Brown memorial volume : proceedings of the Fourth Canadian Permafrost Conference, Calgary, Alberta, March 2-6, 1981 / Edited by H.M. French. NRCC - Canada. National Research Council, no. 20124, 1982, p. 497-506, figures)
References.
ACU

Sea-floor settlement, particularly differential settlement, is important for off-shore island design. For gravel islands, differential settlement at the sea-floor may result in movement of the island surface which could cause damage to surface facilities and/or require substantial amounts of make-up gravel for maintenance of island elevation. For steel gravity-type structures, differential settlement at the sea-floor could cause large stresses within the structure due to loss of foundation support. The magnitude and distribution of settlement beneath an island is dependent on thaw geometry which in turn is dependent on well arrangement on the island surface. ... two different well configurations have been analyzed, one with wells clustered within a circle in the centre of the island and the other with wells on two concentric circles near the periphery of the island. The intent is to consider one case of concentrated thaw beneath the island centre and another case of thaw distributed more evenly relative to the total surface area of the island. (Au)

C-121991
Preservation of permafrost for a fuel storage tank / Davison, D.M. Lo, R.C.
(The Roger J.E. Brown memorial volume : proceedings of the Fourth Canadian Permafrost Conference, Calgary, Alberta, March 2-6, 1981 / Edited by H.M. French. NRCC - Canada. National Research Council, no. 20124, 1982, p. 545-554, 1982, figures)
References.
ACU

The case history is presented of the successful installation of an insulated and ventilated foundation pad for a two million gallon ... fuel storage tank in Inuvik, N.W.T. Because the tank is only heated locally in the winter at the fuel pick-up point near the tank bottom, the tank temperature is relatively low, ranging from 12 to 39 degrees F (-11 to 4 degrees C), with an average of 24 degrees F (-4.4 degrees C). The foundation design employs no forced-air ventilation system, thus saving the related energy cost for operating such a system. Instead, the winter ventilation is accomplished by a wind draft. During the winter months, the average rate of heat removal through the culverts per unit of tank area is calculated to be about 2.4 Btu/hr/square foot (7.6 W/square m). This rate of heat removal is sufficient to freeze back the foundation pad in the winter and to allow the pad to absorb heat from the tank and the ambient air in the summer. Although the foundation pad undergoes annual freeze-thaw cycles, the lower insulation layer dampens the temperature variation in the subsoil and prevents it from thawing. (Au)

C-122521
Permafrost and the Eagle River bridge, Yukon Territory, Canada / Johnston, G.H.
(Proceedings of a Workshop on Permafrost Engineering / Edited by R.J.E. Brown. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 130, p. 12-28, figures)
References.
ACU

The Eagle River bridge is located at Mile 237 on the Dempster Highway, Y.T., about 10 miles south of the Arctic Circle, near the boundary between the discontinuous and continuous permafrost zones .... The 300 ft. long, single span, steel through truss bridge founded on steel piles was constructed between August 1976 and June 1977. ... Design criteria and construction techniques were greatly influenced by a number of factors including the remote location, lack of local building materials, transportation, access and logistical problems and the difficult terrain and severe climate (Hibbert and Beauchamp 1978). Not the least of these were the complex permafrost conditions encountered at the bridge site. ... In cooperation with Public Works Canada, the Division of Building Research, National Research Council of Canada participated in the project and fabricated and installed several ground temperature cables to monitor the ground thermal regime prior to, during and following construction. This note describes some of the observations made to date at the site. (Au)

C-122548
The energy balance at a landslide near Fort Simpson, N.W.T. / Pufahl, D.E. Morgenstern, N.R.
(Proceedings of a Workshop on Permafrost Engineering / Edited by R.J.E. Brown. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 130, p. 31-39, figures, table)
References.
ACU

The terms in the energy balance at the headscarp of a bimodal flow slide have been established to an acceptable degree of accuracy for the period of observation. ... The combined latent and sensible heat flux represent 58% of the total. Although net radiation is somewhat directional at the latitude of the test site, significant differences do not occur on slopes less than 30 degrees. Hence, these conditions represent an essentially isotropic heat source and account for the uniform rate of melting in all directions. ... The methods that are selected to retard or control the rate of melting of exposed permafrost will depend primarily on the amount and the type of ground ice present in the formation and on the magnitude of the net radiation. (Au)

C-122556
A quantitative analysis of creep tests on undisturbed permafrost soil / Savigny, K.W. Morgenstern, N.R.
(Proceedings of a Workshop on Permafrost Engineering / Edited by R.J.E. Brown. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 130, p. 40-56, ill., figures, tables)
References.
ACU

In March and April, 1975, a drilling program was carried out at the proposed Canadian Arctic Gas Pipeline crossing of Great Bear River. One of the objectives was to obtain undisturbed samples of ice rich, glaciolacustrine silty clay to facilitate measurement of deformation properties in confined isothermal creep tests under simulated in situ temperature and stress conditions. Qualitative results of the testing program are reviewed in this paper. ... (Au)

C-122564
Stress- and strain-rate-controlled borehole dilatometer tests in permafrost / Ladanyi, B.
(Proceedings of a Workshop on Permafrost Engineering / Edited by R.J.E. Brown. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 130, p. 57-69, figures, tables)
References.
ACU

In the summer of 1978, two series of borehole dilatometer tests were carried out by the author at a permafrost site near Inuvik, N.W.T. on behalf of the National Research Council of Canada (NRCC). The purpose of the tests was to examine and define the mechanical properties of frozen ground in which the performance of a series of full-scale foundation loading tests is being planned by the Division of Building Research, NRCC, for the near future. This paper presents only the portion of this investigation which concerns the short-term tests and compares the data obtained by two different dilatometers. ... The permafrost table at the site is about 90 cm below the surface. ... Two different instruments were used in the tests: (1) the Menard pressuremeter type G, (Ladanyi and Johnson, 1973) and (2) the Colorado School of Mines dilatometer, also called the CSM Cell (Hustrulid, 1975). Both of them are essentially borehole dilatometers but their size, construction and control systems are quite different. (Au)

C-122700
Oxygen isotope variations in permafrost, Tuktoyaktuk Peninsula area, Northwest Territories / Mackay, J.R.
(Paper - Canada. Geological Survey, 83- 1B, p.

67-74, figures, table)
References.
ACU

Oxygen isotope variations in permafrost in the Tuktoyaktuk Peninsula area, Northwest Territories, are used in conjunction with other data to provide a range of estimates for the delta oxygen-18 values of ice in post-Hypsithermal lake bottom taliks, modern ice-wedge ice, and ground ice of pre-late Wisconsinan age. Some estimates are given for the rate of growth of permafrost in recently drained lakes; the freezing rate at the end of a decade can be less than 0.1 mm/h. The freezing rates are so slow that the effects of oxygen isotope fractionation should be considered in the interpretation of oxygen isotope variations at sites with both closed and open system freezing. (Au)

C-123862
Pleistocene ice and sand wedges, Hooper Island, Northwest Territories / Mackay, J.R. Matthews, J.V.
(Canadian journal of earth sciences, v. 20, no. 7, July 1983, p.1087-1097, figures, tables)
References.
ACU

Buried ice and sand wedges have been found in glacially deformed sediments that can be no younger than the early Wisconsinan. The environmental conditions at the time of ice-wedge cracking have been inferred from the number of elementary ice veinlets, the vertical extent of the wedges, collapse structures, oxygen isotope ratios, and macrofossils of plants and insects. The winter ground and summer climates were probably as warm or warmer than the present. The preservation of the ice in the ice wedges shows that permafrost has been present at Hooper Island since at least the early Wisconsinan. (Au)

C-125270
Permafrost, fire, and the regeneration of white spruce at arctic treeline near Inuvik, Northwest Territories, Canada / Greene, D.F.
Calgary, Alta. : University of Calgary, 1983.
xii, 138 p. : ill., figures, tables ; 28 cm.
Thesis (M.Sc.) - University of Calgary, Calgary, Alberta, 1983.
ACU

Adjacent burned upland stands at the southwest corner of the 1968 Inuvik burn were examined. A secondary site (unburned) was studied in the nearby Caribou Hills escarpment. Shallow active layers are poorer habitats than are deep active layers for white spruce because of a slower rate of thaw (effective growing season length), lower seed dispersal capacity, lower cone production, and poor seedbed creation (because of the depth of the Of) by fire. Fire delimits the range of white spruce by restricting it to areas where the probability of surviving fire is high, e.g., the steeper valley sides and the most deeply incised or sinous perennial creeks. However, nutrient availability may be a problem at sites with relatively low fire frequency. Areas where survival through fire is likely, also tend to possess deep active layers. Although such sites are not uncommon, many remain uncolonized because of the poor seed dispersal capacity of these white spruce stems. (Au)

C-126950
Guidebook to permafrost and related features of the northern Yukon and Mackenzie Delta, Canada / French, H.M. [Editor]. Heginbottom, J.A. [Editor]. International Geographical Union. Commission on the Significance of Periglacial Phenomena [Sponsor].
Fairbanks, Alaska : Division of Geological and Geophysical Surveys, 1983.
viii, 186 p. : figures, tables ; 28 cm.
(Guidebook - Alaska. Division of Geological and Geophysical Surveys, 3)
Cover title: Northern Yukon Territory and Mackenzie Delta, Canada : guidebook to permafrost and related features.
References.
ACU

The primary objective of this guide is to illustrate permafrost conditions and associated geomorphic phenomena existing in the northern interior Yukon and Mackenzie Delta regions of northwestern Canada. Completion of the Dempster Highway makes it possible to undertake an integrated transect through this vast region .... The transect is of particular interest because it (a) encompasses the zones of sporadic, discontinuous and continuous permafrost, (b) traverses alpine, intermontane, and lowland area, (c) includes both glaciated and unglaciated terrain, and (d) passes from the northern boreal forest through both alpine timberline and northern tree line to arctic tundra. ... A final objective relates to the increasing importance of northern regions, both in North America and elsewhere, in terms of man's quest for natural resources. Permafrost presents unusual and distinct geotechnical problems for virtually all aspects of economic development. Deliberately, therefore, the guide includes discussion of such topics as oil and gas exploration; road, bridge, and airport construction; townsite development; permafrost hydrology; placer mining; and environmental concerns. It can be demonstrated that successful economic development of permafrost regions can be accomplished only if the particularities of permafrost terrain are fully appreciated. (Au)

C-135380
The influence of clay-sized particles on seismic velocity for Canadian Arctic permafrost / King, M.S.
(Canadian journal of earth sciences, v. 21, no. 1, Jan. 1984, p. 19-24, figures, table)
References.
ACU

Seismic-wave velocities have been measured on 37 unconsolidated permafrost samples as a function of temperature in the range -16 to +5 degrees C. The samples, taken from a number of locations in the Canadian Arctic islands, the Beaufort Sea, and the Mackenzie River valley, were tightly sealed immediately upon recovery in several layers of polyethylene film and maintained in their frozen state during storage, specimen preparation, and until they were tested under controlled environmental conditions. During testing, the specimens were subjected to a constant hydrostatic confining stress of 0.35 MPa (50 psi) under drained conditions. At no stage was a deviatoric stress applied to the permafrost specimens. The fraction of clay-sized particles in the test specimens varied from almost zero to approximately 65%. At temperatures below -2 degrees C the compressional-wave velocity was observed to be a strong function of the fraction of clay-sized particles, but only a weak function of porosity. At temperatures above 0 degrees C the compressional-wave velocity was observed to be a function only of porosity, with virtually no dependence upon the fraction of clay-sized particles. Calculation of the fractional ice content of the permafrost pore space from the Kuster and Toksoz theory showed that for a given fraction of clay-sized particles the ice content increases with an increase in porosity. It is concluded that the compressional-wave velocity for unconsolidated permafrost from the Canadian Arctic is a function of the water-filled porosity.

irrespective of the original porosity, clay content, or temperature. (Au)

C-136433
Final report on statistical analysis of Pingo-Like Features (P.L.F.) in the Beaufort Sea / Barrodale Computing Services Ltd. Johnson, B.R. Canada. Institute of Ocean Sciences, Patricia Bay [Sponsor].
Sidney, B.C. : Institute of Ocean Sciences, 1980.
26 p. : tables ; 28 cm.
(Contractor report series - Canada. Institute of Ocean Sciences, Patricia Bay, 80- 5)
NFSMO

The main purposes of this probability study are to estimate the number of Pingo-Like-Features (PLF's) in a certain area of the Beaufort Sea, to establish zones of constant average PLF density, and to determine the optimal sampling method for future experiments. The findings of this report are based on sampling data provided from analysis of continuous depth profiles taken throughout the area of interest. ... (Au)

C-136441
Study on the acoustic target strength of the PLF's found in the Beaufort Sea / Geomarine Associates Ltd. Simpkin, P.G. Canada. Institute of Ocean Sciences, Patricia Bay [Sponsor].
Sidney, B.C. : Institute of Ocean Sciences, 1980.
(Contractor report series - Canada. Institute of Ocean Sciences, Patricia Bay, 80- 7)
Appendix.
References.
NFSMO

... The project addressed in this report is specifically a study of the acoustic target strength of PLF's [Pingo-Like Features] in the Beaufort Sea. Relevant information such as size and shape of PLF's has been made available by I.O.S. As no specific measurement of the reflecting properties of PLF's is available, an acoustic model will be developed to a point such that an estimate of the amplitude of the echo from a PLF with respect to the background level can be made. ... (Au)

C-136450
Study of Pingo-Like-Features detected in the Beaufort Sea / Coast Pilot Ltd. Canada. Institute of Ocean Sciences, Patricia Bay [Sponsor].
Sidney, B.C. : Institute of Ocean Sciences, 1980.
(Contractor report series - Canada. Institute of Ocean Sciences, Patricia Bay, 80- 6)
NFSMO

All echo sounding rolls from the C.S.S. Parizeau and C.S.S. Baffin and their associated launches from 1970, 1971 and 1972 were examined for Pingo-Like-Features (P.L.F.) within the following area: between longitude 128 W and 136 W, and between the 20 metre and 200 metre contour line. A total of 205 P.L.F.s were photographed and documented. A Mercator projection map was plotted at a scale of 1:500,000 showing the position of each P.L.F. ... (Au)

C-138614
Permafrost problems for gravel islands and permafrost data collection, Beaufort Sea well completions / Enertech Engineering and Research Co. Goodman, M.A. Gulf Oil Canada Limited [Sponsor].
[Calgary, Alta. : Distributed by APOA], 1978.
1 microfiche : figures, tables ; 11 X 15 cm.
(APOA project no. 152 : Beaufort Sea well completions and permafrost. Report, no. 1)
References.
ACU

This report identifies potential offshore permafrost problems for gravel islands and evaluates data retrieval methods for permafrost mechanical properties and ice/unfrozen water content. Specific solutions for offshore arctic well completions and island design are not presented. (Au)

C-139386
Oxygen isotopic composition of massive ice at Tuktoyaktuk, north Canada / Kato, K. Fujino, K.
(Joint studies on physical and biological environments in the permafrost, north Canada, July to August 1980 and February to March 1981 / Edited by S. Kinoshita. - Hokkaido, Japan : Hokkaido University, Institute of Low Temperature Science, 1982, p. 13-20, figures, table)
(Collected papers on sciences of atmosphere and hydrosphere, v. 20, no. 8, 1982)
References.
ACU

Distinctive ground features such as polygons, pingos and involuted hills are commonly observed in the arctic region, especially around Tuktoyaktuk, N.W.T. of Northern Canada. Their origins and formation processes still remain arguable, but the fact that large ice bodies are found underneath them suggests that water supply from various sources plays an important role in their formation processes. ... A massive ice body at Tuktoyaktuk, Mackenzie Delta, N.W.T., Canada, was subjected in this expedition to a systematic study of the profile of oxygen isotopes of it and a crystallographic study of its ice texture so that the origin of water forming it as well as the formation mechanism of it was investigated. (Au)

See Also : A-19518, A-73741, A-81175, A-103152, F-7323, F-64602, F-80330, F-81566, F-102830, F-104850, F-121622, F-121630, H-30198, H-30341, H-44377, H-101796, H-102199, I-38890, J-73288, M-73156, M-114170, Q-5444, Q-88838, Q-88862, Q-109754, Q-116084, Q-116793, Q-118206, Q-123650, Q-127388, Q-137740, Q-138606, Q-139696, S-135518

D - OCEANOGRAPHY

D-1074
Data record of current observations. Volume 16. Beaufort Sea / Huggett, W.S. Woodward, M.J. Douglas, A.N. Canada. Beaufort Sea Project.
Sidney, B.C.: Institute of Ocean Sciences, Dept. of Fisheries and the Environment, 1977.
139p. : ill. ; 28cm.
Data presented were collected as part of the Beaufort Sea Project.
Mostly tables and charts.
Unpublished manuscript.
ACU

Current meter data from the Southern Beaufort Sea for the years 1973, 1974 and 1975 are summarized. Co-tidal charts are presented of the constituents M2 and K1 for the tidal streams and tides. Temperature and salinity measurements coincident with the current observations are also shown. (Au)

D-3751
Oceanographic data report Amundsen Gulf, August-September 1977 / Macdonald, R.W. [et al].
Sidney, British Columbia : Institute of Ocean Sciences, Patricia Bay, 1978.
92p. : tables, charts, graphs ; 28cm.
(Pacific marine science report, 78- 10)
Unpublished manuscript.
References.
ACU

Ocean Chemistry carried out sampling and analysis during the Pandora II hydrographic cruise to the western arctic in the summer of 1977 on an opportunity basis. Data were obtained at a total of 18 stations for salinity, temperature, oxygen concentration, particle size distribution (Coulter counter), nutrients (reactive silicate, phosphate and nitrate) and are tabulated here. Additional seawater sampling for hydrocarbons and mercury, net hauls (Miller and Neuston) and sediment sampling are also compiled but analytical results are not included. (Au)

D-4766
Open water surface currents in the southern Beaufort Sea / MacNeill, M.R. Garrett, J.F.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
ii, 113p. : ill., graphs, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 17)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 17)
References.
ACU, NFSMO

One of the investigations of the 1974-75 Beaufort Sea Project was an offshore, near-surface current study. A drifting surface drogue was developed that could be deployed and tracked using an aircraft, thus enabling examination of the surface currents over a large area of the Beaufort Sea. ... Tracking was carried out ... using the Twin Otter with the assistance of a Bell 206 Helicopter. The ice conditions in 1975 were entirely different from 1974 which no doubt had a significant effect on the surface currents and their response to weather systems. ... The 1975 data ... shows that the wind plays an important role in driving the currents, especially in the case of steady northwest winds and the aftermath of these winds; the other most important factor being the discharge from the Mackenzie River. Eddies of several different scale sizes and areas of divergence and convergence complicate the picture. In Mackenzie Bay, a persistent divergence is observed, and north of Richards Island a convergence is frequently observed. ... (Au)

D-15466
Sediment dispersal in the southern Beaufort Sea / Pelletier, B.R.
Victoria, B.C. : Beaufort Sea Project, 1975.
80p. : figures, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 25a)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 25a)
Appendices.
References.
ACU, NFSMO

This is a study of sediment dispersal based on textural examination of the bottom sediments. It involves the nature, distribution and origin of these sediments as they occur on the sea bottom. ... (Au)

D-15474
Suspended matter in the southern Beaufort Sea / Bornhold, B.D
Victoria, B.C. : Beaufort Sea Project, 1975.
[31]p. : ill., figures, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 25b)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 25b)
Appendix.
References.
ACU, NFSMO

Concentrations of suspended matter measured in the southern Beaufort Sea in August and September, 1975 ranged from less than 0.1 mg/l to more than 17 mg/l. The highest concentrations were recorded at nearshore stations off Kugmallit Bay. Mid-water and near-bottom zones of turbid water are common, though their exact causes are not clear. ... The major components of the suspended matter include fine inorganic particles, organic aggregates of plankton and inorganic particles, and phytoplankton. ... (Au)

D-15601
The use of airborne laser profilometry for obtaining significant wave heights / Saulesleja, A.
Downsview, Ontario : Atmospheric Environment Service, Dept. of the Environment, 1978.
[17] leaves : figures ; 28cm.
(Project report - Canada. Meteorological Applications Branch, no. 35)
Unpublished manuscript.
References.
ACU, NFSMO

... the goal of this research was to investigate the usefulness of the airborne laser profilometer as a tool for obtaining significant wave height information. (Au)

D-25801
Normal and extreme winds and waves in the Canadian southern Beaufort Sea / Intersea Research Corporation. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1974.
2 microfiches : figures, maps, tables ; 11x16cm.
(APOA project no. 70 : Wind/wave hindcast, Canadian Beaufort Sea. Report)
References.
ACU, NFSMO

... This study describes the surface environmental events with substantial accuracy so that a high degree of confidence may be placed in the results. Specifically, the consultant will (a) evaluate all available wind data associated with recorded wave data to correlate wind velocity, duration and fetch with wave height; (b) use the fetch and wind data to make a wave hindcast; (c) compare the hindcast results with the wave-rider data in order to select the best hindcast method; (d) make a search of past severe storm wind reports; (e) prepare a hindcast model for the locations of interest. (Au)

D-30007
Near bottom currents and offshore tides / Huggett, W.S. Woodward, M.J. Stephenson, F. Hermiston, F.V. Douglas, A.N.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
38p. : ill., graphs, maps, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 16)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 16)
ACU, NFSMO

... Our specific objective was to gain some understanding of the bottom currents and offshore tides in the southern Beaufort Sea, their relationship to wind and ice conditions, and to measure storm surges along the coast in the Mackenzie River Delta area. ... (Au)

D-30015
The physical oceanography of the south-eastern Beaufort Sea / Herlinveaux, R.H. De Lange Boom, B.R.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
viii, 97p. : ill., graphs, maps ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 13)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 18)
Bibliography: p.81-83.
ACU, NFSMO

In the Beaufort Sea meteorological and ice conditions play a major role in the distribution of oceanographic properties. Field studies were conducted during the summer of 1974 ("worst ice conditions on record") as well as during the spring and summer of 1975 ("good ice conditions"). The discharge from the Mackenzie River dominates the surface waters of the southern Beaufort Sea, especially during bad ice years. The density distribution is salinity dominated throughout the system. The vertical profiles of salinity, temperature, turbidity and currents are described for summer and spring conditions. ... (Au)

D-30023
Storm surges / Henry, R.F.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
41p. : ill., graphs, maps ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 19)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 19)
References.
ACU, NFSMO

... This report describes a study, involving numerical models, designed to permit prediction of surge levels between Herschel Island and Cape Bathurst and also to check if surge magnitudes at sites well off-shore are ever large enough to pose hazards to drilling operations. ... The accuracy of numerical storm surge models has to be verified by simulation of a number of actual surges. ... Two subsidiary topics discussed are 'negative surges', that is, temporary decreases in sea-level, which may hinder shipping, and winter surges, which though much less frequent than summer surges, should probably be considered during the design of near-shore structures, in view of their potential for causing ice damage. (Au)

D-43850
1973-1974 winter benthic and oceanographic surveys, offshore Mackenzie Delta, N.W.T. / F.F. Slaney & Company. Bengeyfield, W. Imperial Oil Limited.
Vancouver : F.F. Slaney & Company Limited, 1974.
25 leaves : ill., figures, fold. maps, tables ; 29cm.
Prepared for Imperial Oil Limited.
Appendices.
References.
ACU

... This study was conducted for I.O.L. in late winter, 1973 and 1974, to provide data on winter conditions within the estuarine environment as an aid to identifying environmental concerns and predicting possible impact. ... Specific objectives of the program were to: 1. Sample the winter benthic faunal communities in various sectors of the estuary. 2. Determine certain physical and chemical parameters of any free water. 3. Collect substrate samples from the uppermost layer. ... (Au)

D-43877
Summer environmental program Mackenzie River estuary, 1975 / F.F. Slaney & Company. Olmsted, W.R. Imperial Oil Limited.
Vancouver : F.F. Slaney & Company Limited, 1976.
2v. : ill. (part. fold.), figures, maps, tables ; 29cm.
Prepared for Imperial Oil Limited.
Appendices.
References.
Contents. - v.1. Aquatic studies. - v.2. White whale studies.
ACU

The overall purpose of the 1975 summer program was to supplement the existing data base for the assessment of environmental effects in relation to summer artificial island construction in East Mackenzie Bay by Imperial Oil Limited, and to provide baseline biophysical data at selected sites identified as potential development areas within the Mackenzie Estuary. (Au)

D-64491
Submersible activities under Arctic conditions / Macdonald, M.D. Trice, A.R.
(Proceedings - Conference on Arctic Systems, St. John's, Newfoundland, August 18-22, 1975 / Edited by P.J. Amaria, A.A. Bruneau, and P.A. Lapp. New York : Plenum Press, 1977. Nato conference series : II. Arctic systems : v. 2, p. 837-846, figures)
References.
ACU, SSU, NFSMO

Many of the problems encountered while operating submersibles in Arctic regions are similar to those in any remote area of the world. ... This paper will discuss operational problems and identify areas requiring further development. Arctic areas will include Hudson Bay and the coast of Labrador. ... (Au)

D-66419
Baseline data on chemical oceanography in the southern Beaufort Sea, 1974-5 / Wong, C.S. Macdonald, R.W. Bellegay, R.D. Erickson, P. Sidney, B.C. : Beaufort Sea Project, Institute of Ocean Sciences, [1981?].
51p. : ill., figures, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 14)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 14)
References.
ACU, NFSMO

Two cruises have been made to the Southern Beaufort Sea to collect chemical baseline data ... The primary objective of the survey was to establish the baseline levels of marine hydrocarbons in the Beaufort Sea drilling area by measuring classes of hydrocarbons and identifying some specific hydrocarbons in seawater, marine sediments, marine organisms, marine mammals and fish. That data has been summarized elsewhere (Wong et al., 1976) and this companion data report provides the accompanying information on reactive nutrients (silicate, phosphate and nitrate), dissolved oxygen, salinity and temperature. ... (Au)

D-73130
Evaluation of sonar equipment and techniques for application in the Beaufort Sea : Final report / Huntec ('70) Ltd. Hutchins, R.
Sidney, B.C. : Institute of Ocean Sciences, 1980.
4v. : ill., figures, tables ; 28cm.
(Contractor report series - Canada. Institute of Ocean Sciences, Patricia Bay, 80- 4)
Appendices.
Bibliography and references.
ACU, NFSMO

This is a study of sonar systems which may be suitable for the detection and mapping of pingo-like features in the south eastern Beaufort Sea north of the 20 meter isobath to the edge of the shelf. The major portions of the area of concern lies in water depths in excess of 30 meters. ... (Au)

D-74969
A discussion of factors influencing dispersion of pollutants in the Beaufort Sea / Giovando, L.F. Herlinveaux, R.H.
Sidney, B.C. : Institute of Ocean Sciences, 1981.
(Pacific marine science report, 81- 4)
ACU

A brief history is given of the geographic, hydrographic and oceanographic investigations that were carried out in the Beaufort Sea area during the past 150 years and culminated in the Beaufort Sea Project of 1974-75. The information obtained is utilized to prepare a description of the general physical environment of the area, emphasis being placed on the physical oceanography. This description provides the basis for the consideration of four environmental situations (scenarios), each of which could strongly influence in its own way, the general destiny of crude oil or other pollutants discharged into the Beaufort Sea. The advantages and disadvantages of the cold-region use of some oil-spill countermeasure techniques presently available are discussed. A summary of the expected general behaviour of pollutants entering the Beaufort Sea is given, together with some suggestions for further studies necessary to refine our insight into this behaviour. (Au)

D-80420
Sailing directions - Great Slave Lake and Mackenzie River / Canada. Hydrographic Service. 5th ed.
Ottawa : Dept. of Fisheries and Oceans, 1981.
xii, 159p. : ill., 1 fold. map ; 26cm.
ISBN 0-660-11022-9
References.
ACU

This volume contains a detailed description of the Athabasca-Mackenzie waterway from Fort McMurray, Alberta to Tuktoyaktuk, N.W.T., including routes to be followed and navigational hazards present. (ASTIS)

D-92134
Measurements of wind, ice & surface layer drift in Viscount Melville Sound, summer 1980 / Arctic Sciences Limited. Lemon, D.D. Wilson, M.A. Cuypers, L.E. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
2 v. : figures (some folded), tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD27, BEISSD28)
Appendices: Volume 2 - Data appendices (BEISSD28).
References.
ACU, NFSMO

... The lack of information concerning surface currents in Viscount Melville Sound and Prince of Wales Strait during the summer season had been identified as a major gap in the oceanographic data available along the projected tanker route from the Beaufort Sea to the Atlantic Ocean. The 1980 summer program was designed as a first step toward filling that gap. ... the chief purpose of the study was to provide surface current information ... the measurement program was designed around air-droppable satellite-tracked drifters and ice followers. The devices were deployed in both Viscount Melville Sound and Prince of Wales Strait. Anemometers and air-pressure sensors were deployed around the boundaries of Viscount Melville Sound and were operated throughout most of the measurement program. The data from these instruments were used to derive the surface wind field over Viscount Melville Sound and an approximation of the locally wind-forced surface circulation. ... Ice motion was monitored with a small number of ice trackers and with NOAA and LANDSAT satellite imagery. Correlations between the wind field and the ice motion were examined. (Au)

D-92142
An analysis of current meter data obtained at CANMAR drillships, 1976-1979 / Arctic Sciences Limited. Fissel, D.B. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
ix, 126 p. : figures, tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD29)
Appendices.
References.
ACU

... Canadian Marine Drilling Ltd. has been engaged in offshore drilling for oil in the S.E. Beaufort Sea since 1976. During the course of the drilling operations, measurements of nearsurface and subsurface currents have been routinely collected from the drilling ships along with measurements of other environmental factors including meteorological and wave data. These data were acquired to provide an improved understanding of environmental factors both as they relate to the effect of the environment on offshore operations and the possible impact of offshore drilling on the natural environment. The currents were measured at hourly intervals at up to three depths ... Gaps occur in the records due to instrument failures, the presence of severe sea-ice conditions or to preparations for moving the ship. ... In this report, we present the results of a more thorough analysis of the 1976 to 1979 data than has previously been available. (Au)

D-94552
Arctic oceanographic data report 1977 : western Viscount Melville Sound / Peck, G.S.
Burlington, Ont. : Fisheries and Environment Canada, Centre for Inland Waters, 1978.
viii, 150 p. : figures, tables ; 28 cm.
(Data report series - Canada. Fisheries and Environment, no. 78- 3)
Unpublished manuscript.
References.
ACU, NFSMO

This report contains current, tidal, and CTD data collected during a short Arctic field program in March and April, 1977. Current meters were moored across M'Clure and Prince of Wales Straits and CTD measurements were taken along these two transects and a third in Viscount Melville Sound. Tide gauges were deployed by the Canadian Hydrographic Service to enable sounding reductions to be made, with an additional instrument being specifically deployed for our program. ... (Au)

D-105066
Ocean drifter studies of surface currents along the coasts of Newfoundland and Labrador and in the Beaufort Sea / Diemand, D. Reimer, E.M. Barrie, J.V.
St. John's : Centre for Cold Ocean Resources Engineering, 1982.
viii, 35 p. : figures, tables ; 28 cm.
(C-CORE publication, no. 82- 3)
(Data report - Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering)
ISBN 0-88901-083-8
Appendices.
References.
ACU, NFSMO

Nine thousand plastic surface drift cards were released off the coast of eastern Canada in 1979 and 1980 at known or proposed oil drilling sites in an attempt to determine the probable extent and landfall of oil which might be accidentally spilled at these sites. ... The vast majority of the returned cards were found in Europe, primarily Ireland and the U.K. In addition, 630 cards were released at well sites near the MacKenzie Delta in the Beaufort Sea. Some passed through the Bering Strait and were found in the Aleutian Islands and the west coast of North America, however most, predictably, were swept westward from the release sites and were found along the north and west coasts of Alaska and the N.W.T. (Au)

D-105872
A compilation of chemical oceanographic data used in the preparation of the Beaufort Sea - Mackenzie Delta EIS / Arctic Laboratories Limited. Thomas, D.J. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1982.
10 p. : tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD36)
References.
ACU

This document contains tabular summaries of the raw data that were discussed in the text and used to construct the figures appearing in Volume 3A (Section 1.5 Chemical Oceanography) of the Beaufort Sea - Mackenzie Delta EIS. The data are organized into five tables: Table 1. Summary of trace metal concentrations measured in sea water collected from the Beaufort Sea and other waters. Table 2. Summary of trace metal concentrations measured in sediments collected from the Beaufort Sea and other areas. Table 3. Summary of trace metal concentrations measured in biota collected from the Beaufort Sea and other areas. Table 4. Summary of nutrient concentrations measured in Beaufort Sea and other waters. Table 5. Summary of hydrocarbon concentrations measured in sea water, sediments and biota from the Beaufort Sea. These tables are the condensation of many tables of data from original studies and data reports and only present general chemical observations. ... (Au)

D-107085
CANMAR - Summer's Harbour coaldusting operations 1979 : environmental monitoring / Arctic Laboratories Limited. Thomas, D.J. Canadian Marine Drilling Limited [Sponsor].
Inuvik, N.W.T. : Arctic Laboratories Limited, 1979.
1 microfiche : figure, table ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWE02)
Appendices.
References.
ACU

In May 1979, coaldust was broadcast along a route over the ice leading from Summer's Harbour, Booth Island, N.W.T. seaward past Cape Parry to encourage premature weakening of sea ice. ... A three-phase sampling programme was conducted to fulfill the following objectives as outlined by the Environmental Protection Service of Environment Canada: (1) determine if coal dust can be detected in the water column or sediments during and after breakout of the ships relative to background values established prior to breakout; (2) determine if there is any detectable effect on the chemical oxygen demand in the water column; and (3) measure water current speed and direction in order to predict how the coal dust might be dispersed as it is released to the water column. [The following comprise the results.] ... Coal dust could not be detected in the water column or sediments after breakout of ships. The natural variation of coal, reported as 'non-hydrolysable solids' in the sediments was high and there is evidence for the natural occurrence of coal in the sediments of Summer's Harbour. No increase in chemical oxygen demand in the water column could be detected after breakout. The heavy metal content of Summer's Harbour sediments was similar to that of other Beaufort Sea locations and represents an area uncontaminated by heavy metals. Heavy metals in coal dust were also similar to Summer's Harbour sediments. Thus, the heavy metals in coal dust pose no threat for increasing the concentration of heavy metals in sediments. (Au)

D-107174
A baseline chemical survey at Tarsuit A-25, July 1978 / Seakem Oceanography Ltd. Thomas, D.J. Canadian Marine Drilling Limited [Sponsor].
Sidney, B.C. : Seakem Oceanography Ltd., 1978.
1 microfiche : figure, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWE06)
Appendices.
References.
ACU

Tarsuit A-25 was sampled as a continuation of the Site Survey Programme in July 1978. Baseline values were obtained for copper, zinc, cadmium, lead, nickel, chromium, mercury and iron in sediment, sea water and zoobenthos. Measured dissolved trace metal concentrations were generally within the range found at other sites in 1977. Total and extractable metals in the sediments indicated Tarsuit is located in a fundamentally different oceanographic regime than other site survey locations. In addition, benthos were predictably less abundant and less diversified in species than at most previously studied sites. (Au)

D-108154
Environmental impact statement sections / Arctic Sciences Limited. Dome Petroleum Limited [Sponsor].
Sidney, B.C. : Arctic Sciences Ltd., 1981.
3 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE23)
References.
ACU

This report presents information on the setting, water mass characteristics, mean circulation patterns, high- and low-frequency variability and nutrient levels for the: Beaufort Sea, Bering Sea, Chukchi Sea, Amundsen Gulf, Prince of Wales Strait, Viscount Melville Sound, Parry Channel, Baffin Bay and Davis Strait. (ASTIS)

D-108189
Wave hindcast study Beaufort Sea / Hydrotechnology Ltd. Baird, W.F. Hall, K.R. Gulf Canada Resources Inc. [Sponsor].
Ottawa, Ont. : Hydrotechnology Ltd., 1980.
6 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE28, RWE28B)

Appendices
References
Contents: RWE28 contains the report ; RWE28B contains Appendix B: Wave statistics at Location B: North Issungnak.
ACU, NFSMO

Gulf Canada Resources Inc. requires a reliable description of the wave climate of the Beaufort Sea for the design of structures and operations. The wave data are needed to describe probabilities of occurrences of wave heights and periods, frequencies of exceedance of wave heights and periods, statistics describing the persistence and duration of given wave conditions, and the extreme values of wave height. ... As a consequence of the data now available and the hindcast procedures recently developed, Gulf Canada Resources Inc. requested Hydrotechnology Ltd. to develop a wind-wave hindcast procedure for use in the Beaufort Sea. This report describes the development of the procedure. The first phase of the study consisted of a review of previous wind-wave hindcast studies and an assessment of available wave, ice, wind, and other meteorological data. In the second phase, an acceptable hindcast procedure was developed and comparisons were made of recorded and hindcast wave data. Finally, in the third phase, wave statistics were developed for six locations in the Beaufort Sea. ... Finally, a number of presentations of the wave data were developed to allow efficient use of the hindcast wave data by engineers involved with design and operations in the Beaufort Sea. A hindcast was then completed for six locations. The resulting data are presented in Appendices to this report. (Au)

D-108197
Water quality measurements and dredge spoil monitoring at McKinley Bay, N.W.T., 1980 / Arctic Laboratories Limited. Thomas, D.J. Dome Petroleum Limited [Sponsor].
Inuvik, N.W.T. : Arctic Laboratories Ltd., 1980.
1 microfiche : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE29)
Appendices
References
ACU

In accordance with the requirements of Dome Petroleum's Ocean Dumping permit, water quality measurements (dissolved oxygen, temperature, salinity and water transparency) were conducted at 5 monitoring stations on four occasions at McKinley Bay, N.W.T., during 1980 dredging operations. No significant effects on the water quality of the parameters listed above could be related to dredging in McKinley Bay. The distributions of all measured parameters were generally similar for the station nearest to active dredging and the four background stations. ... Routine chemical analyses were also performed on dredge spoil samples. The heavy metal content was variable; except for Hg in one sample (290 ng/g sediment), all values fell within the range of values accepted for average uncontaminated world coastal sediments. The exceptional mercury concentration was, however, still below the Ocean Dumping Control Act regulated limit of 750 ng Hg/g solid. Total organic carbon content and extractable oil and grease ranged from 0.09 to 8.65% and 45-2120 ppm by weight respectively. Oxygen uptake rates were low having a range of 0.031 to 0.268 mL O2/g sediment/day. (Au)

D-108243
A hindcast study of extreme water levels in the Beaufort Sea / Seaconsult Marine Research Ltd. Hodgins, D.O. LeBlond, P.H. Denmark. Hydraulic Institute. Brink-Kjaer, O. Esso Resources Canada Limited [Sponsor].
Vancouver, B.C. : Seaconsult Marine Research Ltd., 1981.
5 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE36)
Appendices
References
ACU, NFSMO

Extreme significant wave heights, and extreme water levels produced by the addition of wind-generated waves, storm surge and tide, have been calculated in the present study for return periods of 1, 10, 50 and 100 years. These results are specified at 10 sites, ranging in depth from shallow water near the coast to deep water north of Herschel Island. ... The wind-generated waves hindcast in the present study are roughly 2 to 2 1/2 times larger than those derived by IRC (1974) for Imperial Oil Company, Ltd. There are two major causes for this difference: a) the present study has revised the long-return period wind speeds upward from the previous hindcast, and it has used a fully two-dimensional storm-based wind field presentation to the wave model to give an improved extreme wind description over that used by IRC (1974) and b) the present study has defined the open-water generation area by the furthest observed offshore ice-edge, resulting in much longer fetches than used in the previous study. ... it was concluded that the observed wave height data base is presently too short to give reliable extreme wave estimates and that hindcasting based on the meteorological data base is the only viable method for obtaining design wave length. ... (Au)

D-108448
Hydrographic and navigational requirements for tanker traffic in and out of the Beaufort Sea / Canadian Marine Drilling Limited. Steen, J.W.
[S.l.] : Canadian Marine Drilling Ltd., 1980.
1 microfiche : maps ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWT07)
ACU

With predictions of oil production in the Arctic reaching some 250,000 barrels per day by 1985 we are on the eve of a possibly vast increase in shipping through our Arctic waters; an increase not only in the numbers of ships, but also, perhaps more dramatically, in the size of ships. The tankers of 200,000 dwt, and more that are expected to ply the northern routes will draw in the order of 20 metres, require up to 9 miles to come to an emergency stop. Laden with cargo inherently dangerous to man and the environment alike they represent a potential hazard of an unknown, but likely significant magnitude. It is of paramount importance that the requirements for their safe operation are recognized and provided. It should also be recognized that safe operation is indeed possible. This dissertation will treat two of the major factors that can be considered prerequisites for tanker traffic: 1. Bathymetry and charts. 2. Navigational aids. (Au)

D-108600
Overall view of EIS oceanography / Greisman, P. Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel Beaufort Sea [Sponsor].
[S.l. : s.n.], 1982.
6 p. ; 28 cm.
(Beaufort E.I.S. technical specialist report)
ACU

The author of this submission reviews that portion of the E.I.S. which deals with the subject of physical oceanography. A knowledge of this science is needed: 1. for estimating the severity of the environment for operation (wave climate, strong ocean currents, ice concentrations and thicknesses). 2. for estimating fluxes or oceanic transports with regard to oil spills, transport of dredge and drilling, ice, ice island motions. 3. for defining the currents, salinities and marine habitat required by creatures. 4. for estimating the effects of the ocean on local and regional,climate. The author questions the adequacy of existing physical oceanographic knowledge in addressing the items listed above, and reviews specifically: oilspill trajectory modelling, ice motion modelling, climatic effects and stabilization of land-fast ice. (ASTIS)

D-113069
Arctic data compilation and appraisal. Volume 1 :
Beaufort Sea : physical oceanography - temperature, salinity, currents and water levels / Canada. Institute of Ocean Sciences, Patricia Bay. Cornford, A.B. Melling, H. Smiley, B.D. Herlinveaux, R.H. Macdonald, R.W. Arctic Sciences Limited. Lemon, D.D. Fissel, D.B. Canada. DIAND [Sponsor]. Dome Petroleum Limited [Sponsor].
Sidney, B.C. : Institute of Ocean Sciences, 1982.
viii, 279 p. : figures, maps, table ; 28 cm.
(Canadian data report of hydrography and ocean sciences, no. 5)
Appendices.
References.
Also available in microfiche.
Reviewed by document no. 122203.
ACU, NFSMO

This inventory contains a catalogue of all physical oceanographic data from the Beaufort Sea and Amundsen Gulf. Times and locations of measurements are listed and displayed graphically for temperature-salinity, current meter, water level and drifter data. Meteorological and ice information are not included. Yearly plots showing the locations of all measurements are included, as are indexes by area and measurement types. References and sources are listed for all data included in the inventory. (Au)

D-113077
Arctic data compilation and appraisal. Volume 2 :
Beaufort Sea : chemical oceanography / Arctic Laboratories Limited. Thomas, D.J. Canada. Institute of Ocean Sciences, Patricia Bay. Macdonald, R.W. Cornford, A.B. Canada. DIAND [Sponsor]. Dome Petroleum Limited [Sponsor].
Sidney, B.C. : Institute of Ocean Sciences, 1982.
x, 243 p. : maps, tables ; 28 cm.
(Canadian data report of hydrography and ocean sciences, no. 5)
References.
Also available in microfiche.
ACU, NFSMO

This inventory contains a catalogue of chemical oceanographic data sets from the southeastern Sea. The inventory includes commonly- measured substances such as dissolved oxygen, major and minor elemental components, nutrients and less frequently measured substances such as trace elements, hydrocarbons and chlorinated hydrocarbons. Turbidity and suspended particulate matter (although not truly quantities) are also included. Data sets are included for sea ice, sea water, Mackenzie River Delta Channel water, sediments, biota and atmosphere. Times and locations of measurements are listed and displayed graphically on a yearly basis. A geographical index and alphabetical references (by data set number) are also included. (Au)

D-125989
Oceanographic features of the Beaufort Sea in early winter / Melling, H. Canada. Institute of Ocean Sciences, Patricia Bay.
Sidney, B.C. : Dept. of Fisheries and Oceans, 1983.
2 microfiches : figures ; 11 X 15 cm.
(Canadian technical report of hydrography and ocean sciences, no. 20)
Appendices.
ACU, NFSMO

Oceanographic data were acquired over an area of 150,000 square km in the southeastern Beaufort Sea during November 1979 in conjunction with the Beaufort Sea Winter Ice Experiment. Hydrographic profiling by CTD probe enabled delineation of the dynamic topography of the region and identification and tracing of the principal water masses. Baroclinic shear was directed southwestward along bathymetric contours, with a jet of 10 cm/s (0/300 db) overlying the continental slope. Outflow from Amundsen Gulf was evident. Measured flow at mid-depth on the shelf was easterly in the mean, while the baroclinic shear implied weaker surface flow. Observed intrusions of near freezing water over the slopes pointed to important exchanges of water between the shelf and the basin. The existence on the shelf of suitably saline water for these intrusions was confirmed and is indicative of the importance of freezing and ice-cover divergence in Arctic oceanography. (Au)

D-128112
Long-term movement of satellite-tracked buoys in the Beaufort Sea, an interim report / U.S. Coast Guard. Research and Development Center. Murphy, D.L. Tebeau, P.A. Lissauer, I.M. U.S. Coast Guard. Office of Research and Development [Sponsor].
Avery Point Groton, Conn. : U.S. Coast Guard Research and Development Center [publisher]; Springfield, Va. : U.S. National Technical Information Service [distributor], 1981.
1 microfiche : figures, table ; 11 X 15 cm.
(NTIS AD-A-126 344)
Appendix.
References.
NFSMO

Trajectories of five free-drifting satellite-tracked buoys released during the summer of 1979 in open water in the Beaufort Sea north of the Tuktoyaktuk Peninsula indicate a pronounced east-to-west near-surface flow along the northern Alaskan coast. The direction of the buoy movement is in general agreement with the direction of the flow in the southern portion of the Beaufort Sea Gyre as previously calculated from dynamic topography. The buoy tracks and speeds differ from the surface circulation calculated from the dynamic topography .... Analysis of the available wind data suggests that the surface currents as indicated by the motions of the buoys were strongly influenced by the local wind. For surface wind speeds, >= 5 ms the buoys moved 22 degrees to the right of the wind at 3.8% of the wind speed. (Au)

D-133418
Frozen sea research.
(Annual review of activities 1982 - Canada. Institute of Ocean Sciences, Patricia Bay, p. 32-35, ill., map)
ACU

This article reports on the activities of the Frozen Sea Research Group. It's three field operations during 1982 were firstly in conjunction with the studies of the Northwest Passage (Transport R & D), secondly a "channel flow" experiment of near-surface flow in arctic waters and thirdly oceanographic investigation in the vicinity of the Ross ice shelf, Antartica. The contracted CTD survey covering most of the channels in the Canadian Arctic Archipelago and concentrating on Amundsen Gulf is the most comprehensive survey to date covering the archipelago as a whole. Studies of a polynya have been completed as well as work on the formation of gas hydrates during oil well blowouts at depth. Experiments were undertaken to investigate subsea containment of underwater oil well blowouts. Other preliminary studies are outlined and instrument developments described. (ASTIS)

D-138649
A comparison of natural and petroleum resource development related fluxes of metals, hydrocarbons and nitrogen, phosphorus and silicon to the Beaufort Sea / Arctic Laboratories Limited. Thomas, D.J. Canada. Institute of Ocean Sciences, Patricia Bay. Macdonald, R.W. Cornford, A.B.
Sidney, B.C. : Institute of Ocean Sciences, 1983.
1 microfiche : figures, tables ; 11 X 15 cm
(Canadian technical report of hydrography and ocean sciences, no. 30)
References.
This technical report is the first contribution to the appraisal phase of the Arctic data compilation and appraisal series, Canadian Data Report of Hydrography and Ocean Sciences No. 5
Also available in paper
ACU

A geochemical mass balance approach was used to compare the natural flux of heavy metals and hydrocarbons from the Mackenzie River to the Beaufort Sea with the projected anthropogenic flux of heavy metals and hydrocarbons from proposed hydrocarbon production activities on the Beaufort Sea Shelf. Time scales and geographical scales for pollutants specific to the Mackenzie River/Beaufort Sea estuarine zone were set. The geochemical mass balance is a useful first step toward estimating possible effects of industrial activity in the coastal zone; it is within the framework of the physico-chemical estuary that bioavailability, bioaccumulation and ultimately, biological effect can be addressed. The area used in the chemical mass-balance calculations ... has been arbitrarily chosen as being that part of the Beaufort Sea from the Yukon/Alaska border to the entrance of the Amundsen Gulf (Cape Parry) out to the 200 m isobath. The analysis of oceanographic and satellite imagery data indicates this area to be strongly influenced by the suspended sediment load and freshwater output of the Mackenzie River. (Au)

See Also : A-108146, B-48518, B-99368, B-107093, B-108162, B-108170, C-136433, C-136441, C-136450, E-11630, E-15458, E-64467, E-92061, E-126403, G-19305, G-57908, G-85960, G-87785, G-108340, I-45195, I-107875, I-108073, I-108081, I-108219, I-122815, J-108090, L-21237, Q-2860, Q-15520, Q-43885, Q-46566, Q-80462, Q-83380, Q-87556, Q-87599, Q-107182, Q-108103, Q-108120, Q-113395, Q-114650, Q-115711, Q-115746, Q-116157, Q-119008, Q-122203, Q-127337, Q-127388, Q-127396, Q-138533, Q-139696, X-30317

E - METEOROLOGY AND CLIMATOLOGY

E-8737
A study of recorded winds and Beaufort Sea storms during the 1976 drill season / Feuerherdt, W.R.
[Ottawa] : Fisheries and Environment Canada, Atmospheric Environment, 1978.
58p. : maps, tables ; 28cm
(Technical memoranda - Canada. Atmospheric Environment Service, TEC 858)
ISBN 0-662-10077-8
Cover title.
Mostly maps.
References.
ACU, NFSMO

Data gathered from drillships during the 1976 Beaufort Sea drill season was analysed with respect to percentage frequency of windspeed classes and percentage directional frequency of winds. In addition, all Beaufort Sea "STORMS" during the season (i.e. winds >= 20 kt for at least 6 hours) are classified into types and investigated for common factors. (Au)

E-11630
Real-time environmental prediction system / Clodman, J. Muller, F.B.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
ii, 138p. : maps, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 20)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 20)
Appendices.
ACU, NFSMO

Plans for offshore oil drilling in the Beaufort Sea must take into account such hostile environmental elements as ice, waves, storm surges, wind and weather. ... the intent of this study is to design a high-quality real-time environmental prediction system which can forecast ice movement, waves, storm surges, wind and weather and provide timely warnings of threats from these elements to the operations. ... (Au)

E-15458
A study of weather, waves and icing in the Beaufort Sea / Berry, M.O. Dutchak, P.M. Lalonde, M.E. McCulloch, J.A.W. Savdie, I.
Victoria, B.C. : Beaufort Sea Project, 1975.
1v. (various pagings) : figures, maps, tables ; 28cm
(Technical report - Canada. Beaufort Sea Project, no. 21)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 21)
References.
ACU, NFSMO

... Based on an analysis of data from three coastal locations, extreme wind values are presented for offshore areas. Values are given for various return periods and durations. The analysis suggests that the distribution of extreme winds is relatively uniform over southern and eastern portions of the area of interest. In the northwest, where the wind regime is virtually unknown, extreme values may differ from those presented. (Au)

E-15598
Agroclimatic capability of southern portions of the Yukon Territory and Mackenzie District, N.W.T. / Eley, F.J. Findlay, B.F.
Toronto : Atmospheric Environment Service, Meteorological Applications Branch, 1977.
1v. (various pagings) : maps, figures, tables ;

28cm.
(Project report - Canada. Meteorological Applications Branch, no. 33)
Cover title.
Unpublished manuscript.
Appendices.
Bibliography: p.87-97.
ACU

The climate of an area of nearly 50,000,000 hectares in the Yukon and Northwest Territories has been assessed in terms of the possibilities for agriculture. The assessment entailed an examination of the principal climatic factors affecting crop growth, namely: heat, frost frequency, soil moisture deficiency, and (indirectly), light during the growing season. The data were obtained from 43 long-term meteorological stations supplemented by 50 special climatological installations arranged in 20 transects across variable terrain. ... (Au)

E-18040
Applied regression analysis on global radiation in the Mackenzie Valley / Swyszcz, D.O.   Burns, B.M.   Canada. Atmospheric Environment Service. Central Services Directorate.
Toronto : Meteorological Applications Branch, Atmospheric Environment Service, 1973.
i, 12 leaves : tables ; 28cm.
(Project report - Canada. Meteorological Applications Branch, no. 12)
Cover title.
Appendices.
At head of title: Environment Canada. Atmospheric Environment Service. Central Services Directorate.
References.
ACU

The purpose of this paper is to construct a suitable method of objectively predicting the global radiation received at the earth's surface in the Mackenzie Valley. ... Regression analysis was the basic working tool. Extraterrestrial radiation, measured sunshine, maximum sunshine and the previous days global radiation were used as the independent variables. The data were obtained from sites located at Aklavik, Norman Wells and Fort Simpson. ... (Au)

E-39594
Anthropogenic heat and its relation to building and urban climate in Inuvik, N.W.T. / Nicol, K.S.
Ottawa : National Library of Canada, 1978.
2 microfiches : ill., maps, photos. ; 10.5x14.8cm.
(Canadian theses on microfiche, no. 33072)
Thesis (M.Sc.) - University of British Columbia, Vancouver, British Columbia, 1976. - xiii, 135p.
Appendices.
Bibliography: p.127-131.
ACU

... This investigation examined the influence of various atmospheric parameters that act to create a space heating demand, and some of the climatological effects of the consequent anthropogenic heat release in the extreme case of an Arctic settlement in mid-winter. ... Initially, the energy involved in the space heating (for the utilidor-served portion) of Inuvik is regressed against air temperature, wind speed, and solar energy establishing predictive energy-use equations for daily and hourly periods. The equations were well correlated (r squared = 0.90) for both periods, with temperature and wind speed being the most significant variables. ... On a smaller scale, heat loss from a single window surface was analyzed experimentally. ... The potential of anthopogenic heat to modify the townsite climate ... is investigated in regard to its effect on the net long-wave radiation balance. ... Secondly, the impact of the anthropogenic heat in altering the surface energy balance of Inuvik and its environs is investigated. ... (Au)

E-64467
Beaufort Sea automated environmental prediction - pilot Arctic system / Muller, F.B.
(Proceedings - Conference on Arctic Systems, St. John's, Newfoundland, August 18-22, 1975 / Edited by P.J. Amaria, A.A. Bruneau, and P.A. Lapp. New York : Plenum Press, 1977. Nato conference series : II. Arctic systems : v. 2, p. 785-799, figures, tables)
Appendix.
ACU, SSU, NFSMO

The Beaufort Sea Environmental Prediction System has been designed as a result of AES participation in a major environmental impact study by the Canadian Department of the Environment in connection with proposed off-shore drilling for oil and gas. ... The system actually designed is of general interest for those concerned with management in the Arctic .... The emphasis on computerization is not only for efficiency, but for the downstream potential to meet the anticipated requirement for a large increase in the volume, timeliness and detail of forecast information without commensurate increase in manpower and other resources. (Au)

E-83763
Past temperature variations inferred from a 400-year tree-ring chronology from Yukon Territory, Canada / Jacoby, G.C.   Cook, E.R.
(Arctic and alpine research, v. 13, no. 4, Nov. 1981, p. 409-418, figures, table)
(Contribution - Columbia University. Lamont-Doherty Geological Observatory, no. 3176)
References.
ACU

A time series of ring-width indices from 27 cores of 13 white spruce trees ... from Yukon Territory shows growth response to summer temperatures and other climatic variables. The correlations with various temperature parameters are high enough that past temperature information can be inferred for the last 400 yr. ... The chronology shows effects of the "Little Ice Age," of the subsequent Northern Hemisphere warming, and of a recent cooling trend. A second time-series of the first amplitude from a principal component analysis of the ring widths yields a better climatic signal than the time series of ring-width indices. These and other temperature-sensitive trees from near the northern tree line are being used in conjunction with improved analytical techniques to reconstruct temperature parameters for high-latitude areas. (Au)

E-92061
Compilation of climatological data for Beaufort Sea, Chukchi Sea, Parry Channel, Baffin Bay, Davis Strait and Bering Sea regions / Meteorological and Environmental Planning Limited.   Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
xvi, 297 p. : figures, tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD10)
References.
ACU

This is a source document which includes all material used to prepare the summary document for the climatological sections of the EIS. Information on temperature, precipitation, visibility, wind, waves and structural icing for the areas of the Beaufort, Bering, Chukchi seas, Parry Channel and Baffin Bay-Davis Strait are included. (ASTIS)

E-104108
The impact of 1980 climate on offshore drilling in the Arctic / Pilkington, G.R.
(Canadian climate in review, 1980 / Edited by D.W. Phillips and G.A. McKay. Ottawa : Environment Canada, 1981, p. 80-85, figures)
References.
ACU

After 5 years of operating in the Beaufort Sea, a tremendous amount of experience has been developed in coping with the environment. The drill season has been extended from 107 days in 1977 to 149 days in 1979, mainly as a result of the use of a large ice breaker. However, the drilling systems used are still basically open-water systems. ... (Au)

E-126403
Beaufort Weather and Ice Office report / Canada. Beaufort Weather and Ice Office.
[No. 1] (1976?)- .
[Edmonton, Alta. : Atmospheric Environment Service, Satellite and Beaufort Office], 1982.
ill., figures, tables ; 28 cm.
Annual.
Name changed from Beaufort Weather Office report to Beaufort Weather and Ice Office report in 1981.
Ice central forecast verification prepared by Ice Forecasting Central, Ottawa.
NFSMO

Yearly since 1976, Canadian Marine Drilling (Canmar), a subsidiary of Dome Petroleum, has contracted the Atmospheric Environment Service (AES) to provide a forecast service and to provide ice observers to support offshore exploration in the Beaufort Sea. 1982 was the seventh consecutive year a dedicated AES office, the Beaufort Weather and Ice Office (BWIO), was operated from Dome facilities in Tuktoyaktuk during the open water drilling season. Forecast support, ice information and consulting services were provided to other Beaufort operators through contractual and partnership arrangements between Canmar and Esso Resources and Gulf Canada. This report begins with a description of the data base, outlines the program carried out, gives a description of the environmental conditions through the drilling season and concludes with forecast verification. (Au)

E-138126
Liard River Hydroelectric Project : a study of climatic effects in the Mackenzie Delta / Harry, K.F. Parent, L.E.
[S.l. : British Columbia Hydro and Power Authority], 1980.
1 v. (various pagings) : figures, tables ; 28 cm.
ISBN 0-7719-8965-2
Appendix.
References.
ACU

In this report, elements of climate and weather in both the Mackenzie River basin and the Mackenzie River delta and of discharge characteristics of the Mackenzie River are discussed in relation to freeze-up and break-up patterns in the lower reaches of the river. ... The investigations are ... focused on the synoptic (or macro-) scale of meteorology where some data are available. ... To provide some measure of the relationships between radiation and environment, relevant data from stations in northwestern Canada are discussed. The examination of the radiation data indicates that temperatures might be expected to rise more slowly in the spring and to cool more slowly in the fall under controlled flow conditions. It is also shown, however, that times of significant ice changes in the delta tend to vary greatly depending on basin climate and river discharge and that day to day meteorological effects (travelling weather systems, sea breeze effects, etc.) exert a considerable control on delta climate. Because of the many variations caused by these latter elements, the long-term impact of radiation changes that might result from altered ice patterns on the delta will be very difficult to identify. (Au)

E-139327
Observation of wintertime clouds and precipitation in the arctic Canada (POLEX-North). Part 3 : Radar observation of precipitating clouds / Fujiyoshi, Y. Takeda, T. Kikuchi, K.
(Journal of the Meteorological Society of Japan, v. 60, no. 6, Dec. 1982, p.1227-1237, figures, table)
(Collected papers on sciences of atmosphere and hydrosphere, v. 20, no. 60, 1982)
References.
ACU

Wintertime snow clouds were observed by a vertically pointing radar of 8.6 mm in wavelength from Nov. 1979 to Jan. 1980 at Inuvik in the Arctic Canada. In most cases the level of the radar-echo top was nearly equal to or lower than that of the cloud top. Less frequently, however, it was higher than 4500 m in altitude independently of the cloud top level. Air temperature was always higher than -40 C at the level of the radar-echo top. The radar-echo intensity near the ground surface tended to increase with an increase in the level of the radar-echo top. Typical types of snow crystals were the crossed plates, the bullet and the column. The type predominant over others in occurrence varied with the radar-echo intensity near the ground surface and the level of the radar-echo top. This predominance was discussed by taking into account a difference in the vertical profile of air temperature in cloud layers. (Au)

See Also : C-125270, D-25801, D-30023, D-92134, D-92142, D-108189, D-108243, D-128112, F-121622, G-70211, G-70335, G-85960, G-92940, G-123285, H-30198, H-30341, H-99147, H-103250, J-108090, L-117951, Q-15547, Q-80462, Q-87556, Q-107930, Q-115746, Q-127396, Q-138525, Q-138533, T-123188, W-138177

F - SNOW, GLACIOLOGY, AND HYDROLOGY

F-6793
Mackenzie River input to the Beaufort Sea / Davies, K.F.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
ii, 72p. : ill., charts, tables, maps ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 15)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 15)
References.
ACU, NFSMO

This report contains a summary of the findings under the study, "Mackenzie River Input to the Beaufort Sea," one of a series of studies comprising the Beaufort Sea Project. Comprehensive descriptions of the gauging sites and methods used are included in the report. Distribution of flow in the main channels as a percentage of total flow has been determined on a month-by-month basis for the period July 1974 to June 1975. Suspended sediment transport, ice thickness, and water tem perature in the Delta are also discussed and the results shown. (Au)

F-7137
Chemical characteristics of snow in the Yellowknife area, N.W.T. 1975 / Hazra, A.K. Prokopuk, R. Hardin, M.J.
[Edmonton] : Northwest Region, Environmental Protection Service, 1977.
vi, 27p. : maps, tables ; 28cm.
(Surveillance report - Canada. EPS. Northwest Region, EPS-5-NW-77- 7)
References.
ACU

As part of the Yellowknife Environmental Survey the Environmental Protection Service conducted an investigation of the concentration and distribution of contaminating substances in snow during the winter of 1975. ... The results indicate that the snow in the Yellowknife area does not conform to specifications for pH, arsenic, lead, iron and manganese, under the Canadian Drinking Water Standards, 1968. Hence, the recommendation is made that the public be informed of the potential hazard and dissuaded from using melted snow as a source of potable water in the Yellowknife area. (Au)

F-7323
Sub-pingo water lenses, Tuktoyaktuk Peninsula, Northwest Territories / Mackay, J.R.
(Canadian journal of earth sciences, v. 15, no. 8, Aug. 1978, p.1219-1227, ill., tables)
References.
ACU

In 1976 and 1977 three growing pingos were drilled for the purpose of measuring sub-pingo water pressures beneath aggrading permafrost. All holes drilled through permafrost in the pingos and adjacent lake flats produced artesian flow. The flow from the pingos was clear and as the gushers rose to a maximum height of 3 m above ground level, large sub-pingo water lenses under pressure seemed evident. The existence of the lenses was confirmed by sounding their depths once permafrost was penetrated. One pingo had a 2.2 m deep water lens beneath the top. Pressure transducers, installed in the sub-pingo water lenses or in the unfrozen sands beneath, all indicated pressure heads above the tops of the pingos. ... Recharge from a distant source cannot account for the high pressures because the hydrostatic heads are above the pingo tops and as the pingo tops are usually the highest features in Tuktoyaktuk Peninsula, there can be no available higher source area; even if there were distant sources, the countless intervening lakes would quickly release any artesian pressures; and numerous pingos have grown up in drained lakes, which are either too small or too young to have through-going taliks beneath them. Therefore, the observed water lenses and high sub-pingo pore water pressures cannot be attributed to recharge but provide strong field evidence for pressure generated by pore water expulsion. (Au)

F-20664
Peak runoff simulation in a subarctic region / Penel, J. Kung, T.
[Ottawa] : National Research Council, 1976.
[8]p. : figures, map ; 26cm.
(Canadian journal of civil engineering, v. 3, no. 4, 1976, p. 555-562)
References.
ACU

Due to the lack of stream guaging [sic] stations, a peak flow simulation based on physical and meteorological parameters was established for the area along the proposed Mackenzie Valley Highway between Fort Good Hope and the Dempster Highway. Calculations based on snowmelt and rain-on-snow runoff were developed, as it was found that the snowmelt of May or early June gave the yearly spring peak discharge. ... (Au)

F-28711
Mackenzie River Basin Committee : study program, including 1978-79 progress report, work plan 1979-1980 / Canada. Mackenzie River Basin Committee.
[Ottawa : Water Resources Document Reference Centre, c1978].
1 portfolio : map, 31cm.
With: List of QL commands / QL Systems Limited, [1979?] and Online guide to Mackenzie documents for the Mackenzie River Basin Committee / WATDOC, 1979. - Both documents also issued together as a single publication under title: WATDOC online guide to Mackenzie documents, 1979.
ACU

... in 1978 the federal and provincial governments signed a four-year study agreement and commenced a program of baseline studies and information exchange of the water and related resources of the Mackenzie River Basin. This document reports progress made in the first year and describes the activities proposed for 1979-80, which is the second year of the 1978-81 joint study program by the federal, provincial and territorial governments. The Mackenzie River Basin Committee directs the program. (Au)

F-37850
Hydrology of the Nahanni karst, northern Canada, and the importance of extreme summer storms / Brook, G.A. Ford, D.C.
(Journal of hydrology, v. 46, no. 1/2, Mar. 1980, p. 103-121, ill., maps, photos., tables)
References.
ACU

Discovered in August 1971, the Nahanni karst is the most complex high-latitude karst known. Mean annual temperature is -4.5 deg. C and precipitation 566 mm. The most spectacular landforms occur on a structural col (the "north karst") connecting south Nahanni and Ram Plateau. ... Flooding occurs through random perching of water above and below ground where conduits have been heavily alluviated. There is no highly integrated regional groundwater body; water moves along independent or poorly integrated conduits or multiple aquifers. Some depressions are inundated by groundwater entering through estavelles, others when surface and spring inputs exceed drainage. Although winter snowfall averages 213 cm, in most years spring snowmelt does not appear to cause prolonged flooding. However, it raises water levels in the aquifer leaving the area prone to flooding by frequent, intense summer rains. The magnitude and complexity of hydrologic activity in the subarctic Nahanni karst is remarkable, being comparable with that in tropical and temperate carbonate areas. (Au)

F-43869
Fisheries and water chemistry survey, Big Horn Point, Richards Island, N.W.T., 1975 / F.F. Slaney & Company. Martin, L.C. Beaufort Gas Project. Imperial Oil Limited.
Vancouver : F.F. Slaney and Company Limited, 1976.
27 leaves : ill. (part. fold.), figures, maps, tables ; 29cm.
Prepared for Beaufort Gas Project, Imperial Oil Limited.
Appendices.
References.

ACU

Harry Channel, near Big Horn Point in the Mackenzie Delta, N.W.T. ... has been identified as a potential dredging site for granular materials. ... The purpose of the study was to provide ... an overview of the background fisheries, hydrological and water quality data necessary to assess the potential effects of dredging silt and granular materials from Harry Channel. ... (Au)

F-43893
Fisheries, hydrology and water chemistry survey, Harry Channel, Mackenzie Delta N.W.T., 1976 / F.F. Slaney & Company. Poulin, V.A. Martin, L.C. Beaufort Gas Project. Imperial Oil Limited. Fluor Canada Ltd.
Vancouver : F.F. Slaney and Company Limited, 1977.
27 leaves : ill. (part. fold.), figures, maps, tables ; 29cm.
Prepared for Beaufort Gas Project, Imperial Oil Limited, and for Fluor Canada Ltd.
ACU

Harry Channel has been identified by Imperial Oil Limited as a possible barge traffic route to the proposed Taglu D43 Gas Plant Site. Should this route be utilized certain areas between Middle Channel and the proposed docking facilities may require dredging to obtain draft clearance. ... The purpose of the 1976 field survey was to provide ... background fisheries, hydrologic, and water chemistry data necessary to asses the potential effects of dredging both silt and granular materials in three areas of Harry Channel located between Middle Channel and Taglu D43. (Au)

F-50474
Water availability along the proposed Arctic Gas pipeline route from Prudhoe Bay, Alaska, to the Mackenzie Delta, Northwest Territories / Aquatic Environments Limited. Jones, M.L. Canadian Arctic Gas Study Limited. Alaskan Arctic Gas Study Limited.
[s.l. : s.n.], 1976.
viii, 85p. : ill., maps, tables ; 30cm.
Prepared for Canadian Arctic Gas Study Limited and Alaskan Arctic Gas Study Limited.
References: p.58.
ACSC

The purpose of this study was to identify water sources along the proposed pipeline route from Prudhoe Bay to the west side of the Mackenzie Delta, and to assess their withdrawal potential in relation to the estimates of water requirements prepared for each pipeline segment and camp along the route. (Au)

F-64602
An experiment in lake drainage, Richards Island, Northwest Territories : a progress report / Mackay, J.R.
(Paper - Canada. Geological Survey, 81- 1A, p. 63-68, figures)
Reference.
ACU

In the Tuktoyaktuk Peninsula and Richards Island region, Northwest Territories, some thousands of lakes have drained naturally, either in whole or in part, in the past few thousand years. ... Since the region lies in the zone of continuous permafrost, lake drainage and permafrost growth have produced a complex three dimensional permafrost distribution. In order to understand better the processes associated with permafrost growth in drained lakes, a lake 600 m long, 300 m wide, and up to 5 m deep was artificially drained by channel flow along an ice-wedge system in order to simulate natural drainage. ... Probing of the lake bottom immediately after drainage showed that the permafrost surface dipped steeply lakeward where water depths had exceeded 1.5 m. Temperature measurements show that in nearshore areas, where permafrost was less than 10 m deep, freeze-through from the lake bottom to permafrost at depth was completed from 1978 to 1980 by both downward and upward freezing. Where permafrost was much deeper (e.g. more than 20 m), only 5 to 6 m of the lake bottom froze from 1978 to 1980. Accurate levelling of numerous lake bottom bench marks 2 to 23 m deep has shown that frozen ground has continued to heave after the temperature was below 0 deg. C. (Au)

F-80330
Drained lake experiment for investigation of growth of permafrost at Illisarvik, Northwest Territories - initial geophysical results / Hunter, J.A.M. MacAulay, H.A. Gagne, R.M. Burns, R.A. Harrison, T.E. Hawkins, J.P.
(Paper - Canada. Geological Survey, 81- 1C, p. 67-76, figures)
References.
ACU

A multidisciplinary study of the growth of permafrost and its properties under natural field conditions was proposed in 1973 .... The natural field conditions would be created by the drainage of some northern lakes which are on the verge of self-drainage. ... A lake was selected for draining on Richards Island, Mackenzie Delta area, Northwest Territories, approximately 60 km west of Tuktoyaktuk ... The lake dimensions prior to draining were 600 m by 350 m with a maximum water depth of 4.7 m. ... This report deals with a portion of the pre-drainage program in which the Geological Survey of Canada seismic section was involved. (Au)

F-81566
Active layer growth, Illisarvik experimental drained lake site, Richards Island, Northwest Territories / Mackay, J.R.
(Paper - Canada. Geological Survey, 82- 1A, p. 123-126, figures, tables)
References.
ACU

On 13 August, 1978 a lake (600 by 300 m) located 60 km due west of Tuktoyaktuk, Northwest Territories was artificially drained for experimental research in a region of thick continuous permafrost. Permafrost commenced to grow downwards in the first winter on the exposed lake bottom. Active layer depths have been measured in June and August for the first three summers, viz. 1979, 1980, and 1981. The measurements show no trend towards a thinning of summer thaw depths accompanying downward permafrost growth. The absence of a thinning trend is attributed to the warm subjacent permafrost temperatures whose August minimums are in the -1.5 to -3.0 degrees C range for most of the drained lake bottom. The relatively warm permafrost results from two heat sources - the active layer above and the former sublake-bottom talik, whether frozen or unfrozen, beneath. (Au)

F-82180
Hydrologic studies in the Mackenzie Delta region, N.W.T., 1979 / Anderson, J.C. Canada. National Hydrology Research Institute. Snow and Ice Division. Canada. Northern Roads Environmental Working Group [Sponsor].
Ottawa : National Hydrology Research Institute, 1980.
ix, 39 leaves : ill., figures, tables ; 28cm.
ACU

Hydrologic investigations continued during the

1979 open water season at several watersheds in the taiga and tundra zones of the eastern Mackenzie Delta region, N.W.T. Data were gathered on snowpack water equivalent, river channel and culvert icings, precipitation, air temperature, river discharge, suspended sediment and stream water temperature. ... In both taiga and tundra, late winter snowpack water equivalents were low. ... Relatively low suspended sediment concentrations were measured during the spring flood. A reconnaissance of stream crossings along the Mackenzie and Dempster Highways from Inuvik to the N.W.T.-Yukon border in early May revealed very few problem areas from a hydrologic viewpoint. (Au)

F-82198
Northern highways hydrology studies, Mackenzie River basin, 1977 / Canada. Northern Roads Environmental Working Group [Sponsor].
Ottawa : Glaciology Division, Fisheries and Environment Canada, [1978].
39, 19 leaves : ill., figures, tables ; 28cm.
References.
Contents: Hydrologic studies in the Mackenzie Delta region, N.W.T., 1977: a progress report / J.C. Anderson and B.J. Grey. - Hydrologic studies along the Liard Highway, spring and summer, 1977: a progress report / B.J. Grey and J.N. Jasper.
ACU

[1] Hydrologic investigations were continued during the 1977 open water season at a number of small watersheds along the route of the Mackenzie Highway in the east Mackenzie Delta region, N.W.T. 1977 was a year of hydrologic extremes in several respects. Winter season icings within culverts were relatively large, and two complete culvert blockages occurred between Inuvik and km 1512.4. Snowmelt floods were of generally high magnitude, particularly in the tundra .... In contrast, extremely low discharge was observed at most sites by late summer, ... owing to the warm, dry weather .... Flood maxima for the study basins in 1977 were compared with 50-year design flood estimates proposed for the region. The design floods were not exceeded in the taiga zone. [2] In a reconnaissance hydrologic program in 1977, streamflow and precipitation were measured at five study sites along the route of the Liard Highway. Analyses of the meteorologic records revealed that precipitation was below normal during the winter of 1976/1977, and generally above normal during the summer, and some months had extreme amounts. ... Snowmelt runoff was very low, and all study basins had peak flow in response to the same summer rainstorm. The discussion of design flows and the design curves currently in use suggests that some changes are required and that a modified UNIES curve best represents the streams crossed by the Liard Highway. Only one of the measured flows exceeded the design curves presented, but did so by a considerable amount. Suspended sediment and culvert icings are also discussed. (Au)

F-82201
Hydrologic studies in the Mackenzie Delta region, N.W.T., 1978 / Anderson, J.C. Canada. Northern Roads Environmental Working Group [Sponsor].
[Ottawa : Glaciology Division, Environment Canada, 1979].
vii, 49 leaves : ill., figures, tables ; 28cm.
Appendices.
References.
ACU

Hydrologic investigations continued during the 1978 open water season at eight watersheds in the taiga and tundra zones of the eastern Mackenzie Delta region, N.W.T. Data were gathered on snowpack water equivalent, river channel and culvert icings, precipitation, air temperature, river discharge, suspended sediment and water temperature. In the taiga zone, late winter snowpack water equivalent and culvert ice accumulations were of intermediate magnitude in comparison with past years' observations. Snowmelt ... peak discharge was only moderate when compared with that of former years and well below 50-year design curve values. Two noteworthy extremes were the lateness of snowmelt in the taiga zone, and the very low discharge of most rivers by mid- or late summer as a result of a month-long drought in July. A reconnaissance of stream crossings along the entire route of the proposed Inuvik-Tuktoyaktuk highway was done during the snowmelt flood period ... and some preliminary comments are offered. A more intensive study of a major recurrent river icing on Hans Creek was initiated and some observations on the structure and formation of that feature are presented. (Au)

F-88307
Mackenzie River Basin study report / Canada. Mackenzie River Basin Committee.
[s.l. : Mackenzie River Basin Committee], 1981.
xxii, 231p. : ill., col. photos., maps (part fold.), tables ; 28cm.
ISBN 0-919425-08-9
Appendices.
Report is supplemented by nine seperate technical reports.
ACU

The Mackenzie River is at the heart of a huge river system, the largest and longest in Canada. Its basin emcompasses portions of British Columbia, Alberta, Saskatchewan, the Yukon Territory, and the Northwest Territories. Many large areas of the Mackenzie River Basin are virtually unchanged wilderness, with resource wealth that presents many opportunities for development. One prerequisite to socially desirable development is an understanding of the water and water-related resources of the basin. Through the Mackenzie River Basin Committee the federal, provincial, and territorial governments therefore conducted a program of studies on these resources from 1978 to 1981. ... This is the main report for the study program and includes summaries of the study findings, conclusions, and recommendations. Considerable background information was included in Chapter 2 because so little information is available anywhere for the basin as a whole. The report is supplemented by nine separate technical reports: ... 1 Sensitive Areas: Literature Review WATDOC References, 2 Alluvial Ecosystems, 3 Spring Breakup, 4 Hydrometeorologic Network Design, 5 Hydrometeorologic Network Design: Background Reports, 6 Slave River Delta, 7 Athabasca Sand Dunes in Saskatchewan, 8 Daily Hydrologic Model User Manual, 9 Water Quality (1983 publication date). (Au)

F-88323
Slave River Delta / Canada. Mackenzie River Basin Committee [Sponsor].
[s.l. : Mackenzie River Basin Committee], 1981.
1 vol. (various pagings) : ill., tables ; 28cm.
(Mackenzie River Basin study report supplement, 6)
ISBN 0-919425-03-8
Appendices.
References.
Contents: a. Slave River Delta interpretative explanation / Mallard (J.D.) and Associates Limited, C.R. Neil, Northwest Hydraulic Consultants Ltd. - b. Slave River Delta hydrology study / K.F. Davies. - c. Fisheries studies in the Slave River Delta, N.W.T., final report / D.B. Tripp, P.J. McCart, R.D.

Saunders, G.W. Hughs. - d. Assessment of migratory bird resources in the Slave River Delta / R.G. Thompson, R.W. Quinlan, K. Ambrock. - e. Productivity and habitat selection of muskrats in the Slave River Delta / F. Geddes.
ACU

This report contains the results of the Slave River Delta Study which was undertaken as part of the three year (1978-81) Mackenzie River Basin Study Program. The delta was examined because of the serious deficiency of baseline information required to understand the relationships between its biological resources and hydrologic regime. In order to properly understand these relationships it was necessary to examine the origin and present state of the delta and its hydrologic regime; the fish, bird, and aquatic furbearer resources, and their relationships to delta hydrology. Geomorphological changes were identified through analysis of a series of airphotos (1930-79) and landsat images (1972-80). Water samples were collected and flow rates and levels recorded at gauging stations between 1978-80. Aerial surveys (1978-80) were useful in determining the relative status of waterfowl species and muskrat and their habitats. Nets and live-traps were used to collect specimens to tag and monitor species movement. Ground surveys were used to determine habitat use and brood productivity of bird and muskrat populations. Laboratory analysis determined water quality parameters and ages and productivities of fish and muskrat populations. A summary of the results of these investigations follows. (Au)

F-88374
Sensitive areas : literature review, WATDOC references / Allison, L. Nielsen, W. Canada. Mackenzie River Basin Committee [Sponsor].
[s.l. : Mackenzie River Basin Committee], 1981.
viii, 384, 35p. : ill., table ; 28cm.
(Mackenzie River Basin study report supplement, 1)
ISBN 0-919425-02-X
Appendices.
References.
Section B contains a report entitled: A brief guide to online searching the Canadian Environment database / Inland Waters Directorate, Dept. of the Environment.
ACU

This supplement contains the results of two studies undertaken as part of the Mackenzie River Basin Study program. The first section contains the "Sensitive Areas: Literature Review" report, which provides a summary of the available information on thirty seven areas within the Mackenzie Basin that could be expected to suffer in biologic productivity and cultural or social value if changes occurred in the hydrologic regime (for example, river flows and levels, water quality and sedimentation). The list of areas examined is not exhaustive. Each area summary contains a description of the hydrologic characteristics; natural resources (wildlife, fisheries, vegetation); socio-economic considerations; sensitivity to hydrologic change; knowledge gaps or data deficiencies; and concludes with a select bibliography. ... The second section is a user guide to searching the Canadian Environment bibliographic data base containing some 45.000 references to Canadian literature concerned with water resources and related environmental material. This includes the 1600 references and abstracts relating to the Mackenzie River Basin added during the study program. It is accessible throughout Canada on the QL Shared Information Service. (Au)

F-88382
Alluvial ecosystems / Western Ecological Services (British Columbia) Ltd. Salix Enterprises Ltd. Canada. Mackenzie River Basin Committee [Sponsor].
[s.l. : Mackenzie River Basin Committee], 1981.
xii, 129p. : ill., tables ; 28cm.
(Mackenzie River Basin study report supplement, 2)
ISBN 0-919425-06-2
Appendices.
References.
ACU

... The broad purpose of this report is to document break-up and the snowmelt flood as they relate to vegetation of alluvial sites and to wildlife species that rely upon alluvial habitats along the major rivers of the Mackenzie River Basin. The report deals with hydrologic processes during floods, climatic conditions in relation to flood periods, the life and death of alluvial landforms, plant succession and primary productivity of alluvial sites, wildlife habitat on alluvial sites, and ecological processes in alluvial ecosystems. Some aspects of resource use are discussed. The final chapter is a synthesis of the complex ecological relationships within alluvial ecosystems of the Mackenzie River Basin. ... (Au)

F-88390
Spring breakup / Canada. Mackenzie River Basin Committee [Sponsor].
[s.l. : Mackenzie River Basin Committee], 1981.
1 vol. (various pagings) : ill., tables ; 28cm.
(Mackenzie River Basin study report supplement, 3)
ISBN 0-919425-01-1
Appendices.
References.
Contents: 1. Introduction / A. Waroway. - 2. Spring flood / B.J. Grey, D.A. Sherstone, J.C. Anderson, S. Fogaras. - 3. Thermal infrared imagery and photography of Liard and Fort Nelson River confluences, 1979-80 / A.C.D. Terroux. - 4. Ice regime of the Lower Mackenzie River and Mackenzie Delta / A.C.D. Terroux, D.A. Sherstone, T.D. Kent, J.C. Anderson, S.C. Anderson, S.C. Bigras, L.A. Kriwoken. - 5. An exploratory study of fluvial sites and processes in the Mackenzie, Liard and Lower Fort Nelson rivers / M.F. Fox. - 6. Natural energy present during the thaw season in the Mackenzie Delta, N.W.T.: a genaral assessment / B.F. Findlay. - 7. Breakup of the Athabasca and Peace rivers: a generalized documentation / D. Andres.
ACU

... spring breakup of the Liard River has a significant influence on the timing and severity of breakup of the Mackenzie River below their confluence at Fort Simpson, and ... the Liard contributes large amounts of suspended sediment to the lower Mackenzie and its delta. Although considerable effort has been devoted to investigating various aspects of the spring breakup period on the Mackenzie River over the past twenty years, little was known about breakup in the Liard River Basin itself. Consequently, a three year program of baseline studies was undertaken in the Liard River Basin during the breakup periods of 1978-1980. The studies covered the following topics: timing and progress of breakup, including ice thickness and the location and severity of ice jams; suspended sediment transport, including areas of erosion and deposition; water temperature and thermal mixing patterns; and breakup studies in the Mackenzie Delta during 1980. Contributed reports on the mesoclimate of the delta and on the breakup of the Athabasca and Peace Rivers conclude this supplement. ... (Au)

F-89508
On the natural snow crystals of cup type / Kajikawa, M. Hosaka, N.
(Journal - Japanese Society of Snow and Ice, v. 43, no. 4, Dec. 1981, p. 201-205, ill.)
English summary.
References.
Text in Japanese.
ACU

Snow crystals of cup type, which were scarcely ever reported in natural snowfall, were observed at the foot of Mt. Hachimantai, Akita Prefecture and at Inuvik, N.W.T., Canada, using a polarization microscope or a replica solution method. On the basis of study by X-ray Laue photography ... of the hoar crystals of cup type, it seems that the snow crystals of this type constitute a single crystal by themselves. Further, the crystal lographic c-axis of them agrees with the principal axis of hexagonal cup and the horizontal stripes on their side planes (hopper faces) are parallel to the crystallographic a-axis. The growth condition of snow crystals of this cup type was estimated about -21 degrees C in air temperature (Ta) and about 118% in saturation ratio (s), from Ta-s diagram. This growth condition was very similar to that of artificial snow crystals of cup type in early stage by Nakaya .... (Au)

F-94528
Isotope geochemistry of dissolved, precipitated, airborne, and fallout sulfur species associated with springs near Paige Mountain, Norman Range, N.W.T. / van Everdingen, R.O. Shakur, M.A. Krouse, H.R.
(Canadian journal of earth sciences, v. 19, no. 7, July 1982, p.1385-1407, figures, tables)
References.
ACU

Delta sulfur 34 values determined for dissolved sulfate in water discharged by sulfurous springs near Paige Mountain identify gypsum beds in the Lower Devonian Bear Rock Formation as the sulfate source, whereas relatively low delta oxygen 18 values show that as much as 30% of the sulfate may have gone through a reduction-re-oxidation cycle. Reduced sulfur species in the spring water have negative delta sulfur 34 values as a result of microbiological isotope fractionation during sulfate reduction; airborne sulfur species (H2S, SO2, H2SO4) and gypsum formed through reaction of H2SO4 fallout with exposed carbonate rocks show similar negative delta sulfur 34 values. Negative delta oxygen 18 values for the sulfate radical in H2SO4 fallout and in the alteration product indicate that more than half of the oxygen reacting with airborne H2S is derived from water vapour. (Au)

F-102830
Snow cover and ground temperatures, Garry Island, N.W.T. / Mackay, J.R. MacKay, D.K.
(Arctic, v. 27, no. 4, Dec. 1974, p. 287-296, figures, tables)
ACU

F-103365
The bacterial quality of lake waters at Yellowknife, Northwest Territories / Bell, J.B. Zaal, J.F.J. Vanderpost, J.M.
(Arctic, v. 29, no. 3, Sept. 1976, p. 138-146, figures, tables)
ACU

F-104850
Frost blisters of the Bear Rock Spring area near Fort Norman, N.W.T. / van Everdingen, R.O.
(Arctic, v. 35, no. 2, June 1982, p. 243-265, ill., figures, map, tables)
References.
ACU, NFSMO

Frost mounds of the frost blister type form every winter at the site of a group of cold mineralized springs on the east side of Bear Rock near Fort Norman, Northwest Territories, Canada. During each of four years of observation (1975-1978) three to five frost blisters formed, with measured heights ranging from 1.4 to 4.9 m, and with horizontal dimensions between 20 and 65 m. Locations of the blisters varied somewhat, presumably in response to differences in temperature regime and snow cover. Mature frost blisters consisted of a layer of frozen ground ... and a layer of ice ... covering a cavity which in some cases was over 4.0 m high. The cavities contained water during formation of the frost blisters; they were empty by spring. Time-lapse photography revealed that frost blisters can grow as fast as 0.55 m/d, and that some of them fracture, drain and partially subside one or more times before reaching their full height. During the summer, degradation occurs as a result of thawing and slumping of the soil cover and by melting and collapse of the ice layer; portions of the ice layer, or an uncollapsed section of a frost blister, can survive until the second summer after their formation. Water chemistry and isotope studies revealed that the frost blisters are formed by pressure build-up in subsurface water below seasonal frost and that the ice layers accumulate by gradual downward freezing in a closed (or intermittently opened) system filled with water derived from the Bear Rock spring system. Similar frost blisters are found in other areas of groundwater discharge in a variety of locations. (Au)

F-108561
Environmental studies Hans Bay region, N.W.T., 1976. Volume 1 : aquatic studies / F.F. Slaney & Company. Owens, R.A. [Editor]. Gulf Oil Canada Limited [Sponsor].
Calgary, Alta. : F.F. Slaney & Co. Ltd., 1976.
6 microfiches : ill., figures, maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE34)
References.
Partial contents: Part 2: Physical and water quality studies / M. Chambers and G. Bradley. - Part 3: Biological studies / A. Poulin and L.C.Martin.
ACU

Gulf Oil Canada Limited plans to undertake development of natural gas reserves in the Hans Bay region of the Territories. In preparation for this planned development, Gulf requested F.F. Slaney & Company (Alberta) Limited to undertake a number of environmental investigations during spring, summer and fall, 1976. This report outlines the nature and results of those studies. ... Physical and chemical studies were carried out during the 1976 field program and during the preparation of this report to provide a contemporary reference against which to assess biological information. ... Field study components included field water chemistry determinations, lake soundings, collection of water samples for laboratory analysis and completion of description sheets for waterbodies. Office studies involved the calculation of descriptive values for waterbodies examined in the field and included determinations of lake surface area, lake alignment, shoreline perimeter, shoreline development factors, lake drainage areas and flushing rates. Physical studies were limited to waterbodies involved in the biological program and the type and amount of information collected at each site depended to a large extent upon the relative importance of the fishery resources of the waterbody and/or the potential effects of the development upon it. ... Biological studies ... were designed to provide additional information describing waterbodies in the development region in support of Gulf's application for land tenure. ... These waterbodies included Hans Bay, Parsons Lake, Zed Creek and Hans Creek. Extensive studies were conducted on other waterbodies where minor impact from development were expected. ... Studies at these sites consisted of either a single sampling effort (field water chemistry, phytoplankton, zooplankton, zoobenthos and fish), or if initial net sampling indicated no fisheries resource, termination of further study effort. ... (Au)

F-121622
The hydrology of small runoff plots in an area of continuous permafrost, Banks Island, N.W.T. / Lewkowicz, A.G. French, H.M.
(The Roger J.E. Brown memorial volume : proceedings of the Fourth Canadian Permafrost Conference, Calgary, Alberta, March 2-6, 1981 / Edited by H.M. French. NRCC - Canada. National Research Council, no. 20124, 1982, p. 151-162, figures, tables)
References.
ACU

Hydrologic studies of four small runoff plots were conducted in the continuous permafrost zone of north-central Banks Island between 1977 and 1979. ... The results of the study indicate a high degree of variability in the proportions of water losses from the plots, attributable to surface and subsurface flow. This variability is evident both in inter-year comparisons for a single site and inter-site comparisons for a single year. Inter-year variability is controlled largely by the winter snow distribution and by meteorological conditions during the melt season. Inter-site variability is influenced by snowbank size, with the largest snow accumulation site exhibiting the highest percentage loss to surface flow, and the smallest loss to subsurface flow and evapotranspiration. Surface-flow hydrographs of snowmelt runoff recorded at the plots are explicable within the context of accepted snowmelt theory. Surface flow generated by rainfall was much less important and occurred only twice in the three years of measurement. On these occasions, only areas downslope of existing snowbanks, or those areas from which snow had recently disappeared, produced surface flow. These observations support the validity of the partial and variable concepts of runoff generation in the high Arctic. Areas producing surface flow are dependent on topographically controlled snowbank distribution, rather than, as in temperate areas, on the location of streams. (Au)

F-121630
Downslope water movement and solute concentrations within the active layer, Banks Island, N.W.T. / Lewkowicz, A.G. French, H.M.
(The Roger J.E. Brown memorial volume : proceedings of the Fourth Canadian Permafrost Conference, Calgary, Alberta, March 2-6, 1981 / Edited by H.M. French. NRCC - Canada. National Research Council, no. 20124, 1982, p. 163-172, figures, tables)
References.
ACU

Subsurface water movement and solute concentrations were measured during the summers of 1977, 1978, and 1979 on two slopes with small runoff plots, located in the vicinity of the Thomsen River, north-central Banks Island; At two other instrumented plots, subsurface-flow volumes were estimated from water-balance studies. The results show that the relative importance of subsurface flow in the water balance of individual plots varied both at daily and seasonal time scales. On all slopes, however, snowmelt was the major source of water supply, and flow declined very rapidly after the end of snow ablation. In general, the values of solute concentrations in subsurface wash were high. Concentrations tended to increase with depth within the active layer. Seasonal trends in concentrations at any one depth included relatively low values during most of the snowmelt period, an increase in the ten days that followed, and a "plateau" concentration attained at very low discharges. The total weights of solutes removed from the plots by subsurface flow during the snowmelt season were large, with a maximum of 43 g/square m in 1978 at the site of the largest snowbank. Using a dry bulk density of 1.5 Mg/cubic m, this figure corresponds to a denudation rate of 29 mm/1000 years. The removal of materials in solution by subsurface flow is thus regarded as an important geomorphological process in this area of the Arctic. (Au)

F-128040
Mackenzie River Basin Committee annual report / Canada. Mackenzie River Basin Committee.
[No. 1] (1977?)- .
[S.l. : Mackenzie River Basin Committee, 1977?-].
ill. ; 28 cm.
Annual.
Text in English and French.
ACU

... The report highlights the activities of the Committee, and presents a water resource overview of the Mackenzie River Basin, based on the regular exchange of information among the jurisdictions represented. ... (Au)

F-131539
Photogrammetric measurement of discharge in ice-choked northern streams during spring break-up / Sherstone, D.A.
Ottawa : Carleton University, 1980.
2 microfiches : figures, tables ; 11 x 15 cm.
Appendices.
Bibliography: p. 63-69.
Thesis (M.A.) - Carleton University, Ottawa, 1980.
ACU

What is proposed is to utilize aerial photography of northern rivers at break-up to obtain discharge values. Velocities determined from air photo stereopairs, used in combination with channel cross-profile data can be used to calculate discharges. From such work it is then proposed to further develop an analytical relationship between channel geometry and velocity which will permit calculation of discharge in areas where no stream gauging network exists. If such a method were feasible then development of an approach which permits use of non-metric, 35 mm camera systems to obtain velocity data may be possible. The immediate scope of this thesis is to use aerial photography of northern rivers at break-up, with established ground control to obtain discharge values which can be compared with values published for the same sites, by Water Survey of Canada. This is to be done by: (a) mapping the surface velocities of a test reach of river, (b) from this surface velocity map, the average channel velocity is calculated, (c) a cross-profile in the test reach is then used to calculate discharge from the equation Q = VA ...., (d) the results from this approach are then compared with published discharge values for the same site on the same date to determine the accuracy of the method and the suitability of such an approach for operational use. (Au)

F-131954
Hydrologic and hydraulic studies for northern pipelines / Neill, C.R.
(Proceedings, Canadian Society for Civil Engineering 1982 Annual Conference, Edmonton, Alberta, May 27-28, 1982. - [S.l.] : CSCE, 1982, v. 3, p.1221-1245, figures)
References.
NFSMO

The paper is based on studies conducted for river crossings on Polar Gas and Foothills pipeline routes. It discusses design flood criteria, development of design flood estimates, field reconnaissance, river ice phenomena, channel surveys, bank erosion and bed scour, and sedimentation. Numerous references to northern river studies are given. ... (Au)

See Also : A-60194, A-73741, A-81175, A-136999, C-24198, C-112321, C-121649, C-126950, E-138126, H-51250, H-85200, H-102873, I-38598, I-108138, I-108235, I-135631, L-17949, P-63592, Q-102890, Q-107190, Q-118117, Q-118168, Q-118192, Q-118796, R-39462, R-52590

G - ICE - Except Glacier Ice and Ground Ice.

G-3530
Sea ice topography in the Beaufort Sea and its effect on oil containment / Wadhams, P.
(AIDJEX bulletin, no. 33, Sept. 1976, p. 1-52, ill., tables, charts)
(Technical report - Canada. Beaufort Sea Project, no. 36)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 36)
Originally appeared as Beaufort Sea Project Technical Report No. 36, with the title "Sea Ice Morphology in the Beaufort Sea."
Bibliography: p.49-52.
ACU, NFSMO

The topography of the Beaufort Sea ice cover has been examined from airborne laser profiles obtained in September and October 1974 by the Atmospheric Environment Service, Environment Canada, and in April 1975 by the Canadian Maritime Command, Department of National Defence. Mean ridge heights and spacings were deduced for the elements of a grid covering much of the Beaufort Sea. ... On the basis of these and other studies of the Beaufort Sea Project, a discussion is given of the extent to which sea ice deformation features may govern the long-term spread of oil under ice. (Au)

G-5460
Dynamic response to ice forces : the offshore monopod system proposed for the Canadian Beaufort Sea / Swamidas, A.S.J. Reddy, D.V.
(Proceedings - International Symposium on Cold Regions Engineering, 2nd, University of Alaska, 12-14 August 1976. Edited by John Burdick and Philip Johnson. Fairbanks : Cold Regions Engineers Professional Association and Dept. of Civil Engineering, Univ. of Alaska, 1977, p. 408-411, ill.)
ACU, NFSMO

This study considers the dynamic response of large diameter monopod structures to the impact forces caused due to the sudden movement of the shorefast ice. (Au)

G-11649
Movement and deformation of the landfast ice of the southern Beaufort Sea / Cooper, P.F.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
16p. : maps, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 37)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 37)
References.
ACU, NFSMO

It is premature to assign definite mechanisms to explain the measured landfast ice movements .... Two points, however are clear: (1) Points on landfast ice around the mouth of Kugmallit Bay can move by distances of up to several tens of metres in the course of a winter. (2) Smaller-scale measurements southeast of Herschel Island show deformations of the ice cover there of comparable magnitude (up to a few parts in 10,000), on scales of both 30 m and a few km. These indicate that whatever process is at work around Kugmallit Bay is of more general occurrence and that movement of the ice cover can be expected anywhere in the landfast ice between Herschel Island and Cape Bathurst. (Au)

G-15482
Ice climatology in the Beaufort Sea / Markham, W.E.
Victoria, B.C. : Beaufort Sea Project, 1975.
87p. : ill., figures, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 26)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 26)
References.
ACU, NFSMO

This report consists of four separate studies concerned mainly with ice climatology in the southern Beaufort Sea. The first ... describes the variation of ice concentration with the time of year for six regions with different ice regimes. The second describes the motion of individual ice floes relative to the wind. The third describes a reasonably accurate method for predicting the gross features of the northward retreat of the polar pack ice in the Beaufort Sea and the fourth is an examination of the size of ice floes within various ice concentration ranges near the edge of the polar pack. (Au)

G-15539
Satellite observations of the Beaufort Sea ice cover / Marko, J.R.
Victoria, B.C. : Beaufort Sea Project, 1975.
viii, 137p. : ill., figures, table ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 34)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 34)
References.
ACU, NFSMO

Using the NOAA and ERTS series of satellites, observations of the Beaufort Sea and encompassing Canada Basin ice cover have been carried out for the March through October periods of the years 1973-5. The seasonal trends in motion and appearance over each of these years were detailed for the defined landfast-ice, transition and gyral pack zones. The positionings of the summer ice pack boundaries, the leads at the edge of the landfast-ice and other surface features were determined. ... (Au)

G-18627
Ice motion in the Beaufort Sea / Neralla, V.R. Venkatesh, S. Danard, M.B.
(Proceedings - Symposium on Modeling of Transport Mechanisms in Oceans and Lakes, Burlington, Ontario, 6-8 October, 1975. Canada. Marine Sciences Directorate. Manuscript report series, no. 43, p. 259-276, ill., figures,

tables)
References.
ACU, NFSMO

... An attempt is made here to describe a steady-state theory of ice drift based on a balance between air-ice drag, water-ice drag and Coriolis force. ... Case studies of ice motion in the Beaufort Sea area are presented. Methods of computing forward and backward two-dimensional horizontal trajectories of an ice particle originating at any arbitrary point are discussed. (Au)

G-19283
The Beaufort Sea ice sampling project - 1970 / Croasdale, K.R.
[Calgary : Distributed by APOA, 1970].
3 microfiches ; 11x16cm.
(APOA project no. 2 : Beaufort Sea - ice movement and current survey - 1970. Report, no. 1)
Appendices.
References.
ACU, NFSMO

Summary of Results - The ice at fifteen sites across the Mackenzie Delta area of the Beaufort Sea has been sampled during the period March 22 to April 19, 1970. Those properties affecting ice strength were sampled; in particular: thickness, snow cover, salinity, temperature, small scale strength and crystal structure. The average of ice thickness measurements during the fourth week of March was 61 inches; the average snow cover about 4 inches. Ice salinities varied in the range 0 to 11.3 o/ooo (parts per thousand). Water salinities were in the range 0.2 to 28.5 o/ooo. The fresh water from the Mackenzie River has a considerable influence on salinity distributions. In most of Mackenzie Bay the ice can be considered fresh. Small scale strength values are typical for sea ice of low salinity and indicate a tensile strength of 100 psi at the most. The crystal structure examinations show typical columnar ice with a horizontal c-axis. (Au)

G-19291
The "Nutcracker" ice strength tests, 1969-70 / Croasdale, K.R.
[Calgary : Distributed by APOA, 1970].
5 microfiches, ill. : 11x16cm.
(APOA project no. 1 : Nutcracker ice strength tests, 1969-70. Report, no. 1)
Appendices.
References.
ACU, NFSMO

During field tests using the nutcracker ice testers we have measured ice crushing strengths in the range 600 to 900 psi. Approximate deflections at failure (peak stress) were in the range 0.6 to 2.3 inches. The tests were conducted in Tuktoyaktuk harbour where the ice was brackish with salinities up to about 3 grams/kg (i.e. parts per thousand). The results did not appear to be very sensitive to variations in loading rate in the range 200 to 1,500 psi/minute. Doubling the leg diameter did not significantly reduce the nominal ice failing stress. (Au)

G-19305
Ice and current measurements program, Beaufort Sea, Spring 1970 / Oceanographic Services, Inc.
Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA, 1970].
1 microfiche ; 11x16cm.
(APOA project no. 2 : Beaufort Sea - ice movement and current survey - 1970. Report, no. 2)
ACU, NFSMO

Under contract to Imperial Oil Limited (IOL), Oceanographic Services, Inc. (OSI) installed self-contained ocean current and ice movement sensors at several Beaufort Sea locations designated by IOL. These instruments recorded current velocity and ice movement data for approximately two months. Measurements of ice thickness and water depth were made at each location at times of installation and recovery of the instruments. The instruments were installed during the period February 23 to April 7, 1970, and recovered during the period April 30 to June 1, 1970. This report presents the data obtained during the survey and describes certain techniques used and problems encountered. (Au)

G-19399
A study of several pressure ridges and ice islands in the Canadian Beaufort Sea / Hnatiuk, J. Kovacs, A. Mellor, M.
(Journal of glaciology, v. 20, no. 84, 1978, p. 519-532, ill., figures, map)
References.
ACU, NFSMO

The environmental conditions in the southern Beaufort Sea are described with special emphasis on pressure ridges and ice islands. Techniques for determining the geometric configurations and the physical and mechanical properties of sea-ice structures and ice islands are described. ... The data obtained in this study will be used in engineering design studies for offshore structures for drilling and production of hydrocarbons from the Beaufort Sea area. ... (Au)

G-21296
The nutcracker ice strength tests, 1970-71 / Croasdale, K.R.
[Calgary : Distributed by APOA, 1971].
3 microfiches : ill., figures ; 11x16cm.
(APOA project no. 9 : Nutcracker ice strength tests, 1970-71. Report)
Appendices
References
ACU, NFSMO

During the Arctic field tests ice strengths were measured in the range 595 to 1050 psi. These values confirm last years results. Taken in total the Arctic tests do indicate a size effect, however as only two sizes of pier were tested no working relationship can be derived. The modes of failure seemed more brittle than last year probably because the ice was even fresher; a typical salinity being about 0.1 gm/kg (parts per thousand). Twenty-seven tests were conducted on lake ice with a portable ice strength tester. Ice strengths in the range 360 to 720 psi were obtained. The tests gave a very consistent mode of failure similar to that suggested by Morgenstern in his theoretical analysis. Almost two decades of strain rate were covered during the tests (10 -4 to 10 -2 sec -1). However maximum ice pressure (ice strength) showed very little sensitivity to strain rate, except for a slight reduction at the higher strain rates. ... (Au)

G-24457
Engineering memorandum : Beaufort Sea summer ice study / Amoco Canada Petroleum Company Ltd.
Nolte, K.G. Scott, R.R.G.
[Calgary : Distributed by APOA, 1971].
1 microfiche : ill., figures, tables ; 11x16cm.
(APOA project no. 14 : Beaufort Sea summer ice study. Report)
Appendices.
ACU, NFSMO

The study of ice conditions in the Beaufort Sea was accomplished by testing ice floes from a boat and conducting two reconnaissance flights. An unusual heavy concentration of old pack ice was observed in the Mackenzie Bay, a condition which was caused by a severe storm on September 14, 1970. This enabled the testing of floes relatively close to shore, along the boat route from Tuktoyaktuk to Herschel Island .... All of the floes tested with the exception of Test Floe #1 were smooth ridged, low in salinity, in temperature equilibrium with the surrounding water, and composed of multi-year ice. The average compressive strength of the floe ice tested was above 300 psi, and the average Brazil tensile strength was 66 psi. All of the floes tested were greater than 13 ft. in thickness. The freeze-up process from the frazil to the nilas stage was observed and because of the relatively fast freeze-up process, additional testing was not possible. (Au)

G-24473
Investigation of sea-bed scouring in the Beaufort Sea (Phase II) / Hunting Geology and Geophysics Ltd.
[Calgary : Distributed by APOA], 1973.
1 microfiche : figures, tables ; 11x16cm.
(APOA project no. 32 : Beaufort Sea scour records - Phase II. Report)
References.
ACU, NFSMO

Purpose: To study all aspects of sea bottom scouring in selected areas of the Beaufort Sea. A mosaic of a control area surveyed by the Canadian Government in 1971 was constructed from Side Scan Sonar Records. An attempt was made to resurvey this area in 1972 using Side Scan and Echo Sounders and one additional area was similarly surveyed. Mosaics of these areas were constructed. During future projects they will be analyzed to determine the number of new scours added. All data recorded after 1970 was incorporated into a revised analysis to replace that done during APOA Project 19. (Au)

G-24511
Destruction of ice islands by explosives / Mellor, M. Kovacs, A.
[Calgary : Distributed by APOA], 1972.
1 microfiche : ill., figures ; 11x16cm.
(APOA project no. 36 : Ice islands destruction - Beaufort Sea. Report)
References.
ACU, NFSMO

Purpose: To determine the feasibility of destroying or reducing the size of an ice island threatening a future offshore structure. Three grounded ice islands burg bits in Mackenzie Bay were subjected to explosives set in varying quantities, depths, and patterns. Methods of rapidly drilling and placing explosives were employed. Tests for optimum bench width were conducted. (Au)

G-25488
The interpretation of ice strength from in-situ indentation tests / Morgenstern, N.R. Nuttall, J.B.
[Calgary : Distributed by APOA], 1971.
1 microfiche : figures, tables ; 11x16cm.
(APOA project no. 16 : Theoretical analysis of ice failure. Report, no. 1)
References.
ACU, NFSMO

... Imperial Oil Ltd. and APOA have requested the writers to conduct a study on Arctic ice along the following lines ... 1. A theoretical analysis of both data from ice pressures on bridge piers and from "Nutcracker" tests, with the aim of investigating the relationship between known mechanical properties of ice and the behaviour observed in these small prototype studies, and 2. if found warranted as the theoretical analysis progresses, a special review of existing experimental data on the strength of ice in the context of the problem, with a view to making recommendations for testing in order to obtain appropriate data if it does not exist. ... This report presents the results of the theoretical study of the "Nutcracker" test and related test configurations. ... The report ends with conclusions regarding the use and limitations of the results presented here together with recommendations for more field and laboratory testing which will explore further the applicability of these results. (Au)

G-25500
Sea ice pressure ridges and ice islands / CREARE, Inc. Kovacs, A. Mellor, M.
[Calgary : Distributed by APOA], 1971.
3 microfiches : ill., figures, tables ; 11x16cm.
(APOA project no. 17 : Beaufort Sea pressure ridge and ice island scouring. Report, no. 1)
(Technical note - CREARE, Inc., no. 122)
Appendices.
References.
ACU, NFSMO

The environmental conditions of ice-covered polar seas are described, with special emphasis on the pressure ridges and ice islands encountered in Mackenzie Bay and the Beaufort Sea. Techniques for determining the geometric configurations and the physical and mechanical properties of sea ice structures and ice islands are described. Profiles of pressure ridges were determined by surface surveys, drill hole probes, and side-looking sonar scanning; results are given for several multi-year ridges and one first-year ridge. Supplementary information obtained from dives under the ice is also given. Corresponding data are given for ice islands, with particular attention being given to contact between the ice and the sea bed. Measurements of temperature, salinity, tensile strength and compressive strength are given for ice taken from old pressure ridges, and factors influencing the interpretation of test data are discussed. The main report closes with a brief discussion of some of the findings. The appendices give complete diving reports, and a full report on the performance of the SR N6 Hovercraft. (Au)

G-25518
Sea ice tests / Nuttall, J.B.
[Calgary : Distributed by APOA, 1971]
1 microfiche : ill., figures, tables ; 11x16cm
(APOA project no. 17 : Beaufort Sea pressure ridge and ice island scouring. Report, no. 2)
ACU, NFSMO

This report presents the results of tests on Sipre core samples of ice received from Gulf Oil Canada Ltd. on May 6, 1971 and tested in the laboratory of the Civil Engineering Department, University of Alberta. ... Thin sections were made from each of the samples and photographs of these are included here. The small half cylinders were tested for salinity, and crystal orientation was measured for five of the six samples. No strength tests were carried out on these samples. Crystal orientation was found for all six of the short cylindrical samples; all were tested for compressive strength and salinity. The long cylindrical samples were tested for compressive strength, generally two tests from each specimen, and all were tested for salinity. Crystal orientation was measured for 11 of the 15 samples. All samples were stored and tested at -10 deg. C. (Au)

G-25526
Micropaleontologic - mineralogic analysis of recent mud samples from ice-scoured surface of Beaufort Shelf / Lerand, M.M.
[Calgary : Distributed by APOA], 1971.
1 microfiche : figure, table ; 11x16cm.
(APOA project no. 17 : Beaufort Sea pressure ridge and ice island scouring. Report, no. 3)
ACU, NFSMO

Five samples of unconsolidated mud from the Beaufort Sea shelf were analyzed for microfaunal content and clay mineralogy in hopes of discovering some criteria by which the age of ice-scoured trenches could be dated. One sample was recovered from the sediment-water interface in the bottom of a trench, and four samples came from a shallow (48 cm) core adjacent to the trench. ... Although there is some slight similarity of the trench sample (#55) to the two samples from the upper part of the sediment column (0-12, 12-24 cm) adjacent to the trench, the five samples do not represent a statistically valid sample and definite conclusions based on this data are not justified. The samples are all so similar that they may all be assumed to have been taken from a single population of Recent age. The clay mineralogy analysis suggests a similar relationship to that hinted by the micropaleontology. ... (Au)

G-25542
Investigation of sea-bed scouring in the Beaufort Sea / Hunting Geology and Geophysics Ltd.
[Calgary : Distributed by APOA], 1971.
1 microfiche : tables ; 11x16cm.
(APOA project no. 19 : Analysis of sea bottom iceberg scouring records. Report)
Appendices.
References.
ACU, NFSMO

Side-scan sonar, echo-sounder and seismic profiler records from the Beaufort Sea show conclusive evidence of scouring on the sea-bed. This is generally believed to be due to the passage of ice-masses. Every third nautical mile of selected records has been analysed by visual and statistical means to determine the origin and rate of scouring. A number of spatial relationships have been established which have a bearing on these problems. These relationships include scour frequency, depth and azimuth. Recommendations are made for further sonar, echo-sounder, sampling, oceanographic, meteorological and radiocarbon work. (Au)

G-25585
Landfast ice movement - Mackenzie Delta 1972 / Imperial Oil Limited ; Croasdale, K.R. ; Spedding, L.G.
[Calgary : Distributed by APOA], 1972.
3 microfiches : ill., figures, tables : 11x16cm.
(APOA project no. 33 : Land fast ice movement - Beaufort Sea 1971-72. Report)
Appendices.
ACU, NFSMO

The report describes the measurement of the movement of ten sites located on the landfast ice north of Richards Island in the Mackenzie Delta. The work was conducted during the period January to May 1972. The measurements were made with a spring tensioned reel/wire system connecting the ice with the sea bed. At five locations a telemetry system allowed readings to be taken remotely from a master control in Inuvik 80 miles away. Wind and temperature information was also collected. (Au)

G-25658
Landfast ice movement - Mackenzie Delta 1972-73 / Imperial Oil Limited ; Spedding, L.G.
[Calgary : Distributed by APOA], 1973.
6 microfiches : ill., figures, maps, tables : 11x16cm.
(APOA project no. 51 : Ice movement in Beaufort Sea 1972-73. Report)
Appendices.
ACU, NFSMO

This report describes the measurement of the movement of fourteen sites located on the landfast ice between Shingle Point in the Mackenzie Bay and Atkinson Point on the Tuktoyaktuk Peninsula. An additional site just outside the landfast ice was also monitored for a short period. This work was conducted during the period of November, 1972 to May, 1973. The measurements were made with a spring tensioned reel/wire system connecting the ice with the sea bed. At 12 locations a telemetry system allowed readings to be taken hourly from a master control in Inuvik, 100 miles away. At the remaining three stations recorders collected the data. Wind and temperature information was also collected. (Au)

G-25704
Ice island count, south Beaufort Sea, 1972 / Barton, R. ; Croasdale, K.R. ; Hnatiuk, J. ; Smith, J.G.
[Calgary : Distributed by APOA], 1972.
2 microfiches : ill., figures ; 11x16cm.
(APOA project no. 53 : Count of ice islands - Beaufort Sea 1972. Report)
ACU, NFSMO

Better knowledge about the size and distribution of ice islands from year to year is needed to help in decisions concerning methods of exploration and development in the offshore province. The work covered in this report is a start in the process of collecting yearly counts of ice islands along the coast of the South Beaufort Sea. In May 1972, an aerial reconnaissance flight was made along the shear zone between Cape Bathurst and Cape Halkett. The object of the flight was to record the number and size distribution of the ice islands grounded or trapped in the fast ice of the South Beaufort Sea. A total of 477 aerial photos were taken, these have subsequently been scrutinized. The report presents ice island frequency versus water depth and size for individual legs of the flight. (Au)

G-25712
The extent and growth patterns of landfast ice in the southern Beaufort Sea - Winter 1972-73 / Spedding, L.G.
[Calgary : Distributed by APOA], 1974.
3 microfiches : ill., figures ; 11x16cm.
(APOA project no. 54 : Ice geology of the southern Beaufort Sea. Report, no. 1)
References.
ACU, NFSMO

The growth and extent of the landfast ice in the Beaufort Sea seem to follow a similar pattern each year. To record the progression of the ice out from shore and to record the position and quantity of relevant ice topographical features, seven photographic reconnaissance flights were undertaken. These covered the landfast ice between Herschel Island and Atkinson Point during the period January 27 to June 10, 1973. Imperial Oil's camera-equipped Twin Otter aircraft was used. Preliminary analysis of the photographs to classify the ice surface features into zones has been undertaken and presented in this report. Included also is the profiling of some surface features photographed on one flight. Satellite photographs, visual reconnaissance flight reports, and ground observations from other field work have been used as an aid to interpretation and to give a more comprehensive coverage of the ice conditions through the winter. (Au)

G-25720
Ice island count, southern Beaufort Sea, 1973 / Spedding, L.G.
[Calgary : Distributed by APOA], 1974.
1 microfiche : ill., figures ; 11x16cm.
(APOA project no. 54 : Ice geology of the southern Beaufort Sea. Report, no. 2)
Appendices.
ACU, NFSMO

On May 27th and May 30th 1973 aerial reconnaissance flights were made along the shear zone to cover the area between Point Barrow and Cape Bathurst. This is a follow up of a similar flight flown on May 23rd 1972 to record the size and distribution of ice islands grounded or trapped in the fast ice of the Southern Beaufort Sea. Subsequent analysis of the photographs indicated the presence of 299 ice islands and fragments including sixteen small fragments visually sighted and not recorded on photographs. The ice islands observed this year seem to be the result of the break-up of larger islands grounded in the winter of 1971 - 1972. (Au)

G-25739
Statistical analysis of ice pressure ridge distribution in the southern Beaufort Sea / Gladwell, R.W.
[Calgary : Distributed by APOA], 1976.
1 microfiche : figures, tables ; 11x16cm.
(APOA project no. 54 : Ice geology of the southern Beaufort Sea. Report, no. 3)
References.
ACU, NFSMO

An analytical function for describing the statistical height distribution of ice pressure ridges in the Arctic Ocean is tested and found acceptable for describing ridge distribution in the shallow water of the Southern Beaufort Sea. By comparing the fits of predicted and measured height distributions, the best ratio of keel depth to sail height of ridges in the Southern Beaufort Sea is found to be 3.8. Based on that ratio, less than one percent of pressure ridges in the area northwest of Atkinson Point are grounded. Approximately four percent of those north of Richards Island are grounded. (Au)

G-25780
Beaufort Sea summer ice testing project / Fenco Consultants Limited.
[Calgary : Distributed by APOA], 1973.
12 microfiches : ill., figures, tables ; 11x16cm.
(APOA project no. 60 : Beaufort Sea summer ice testing project. Report)
References.
ACU, NFSMO

To study the summer ice properties and the physical parameters of the floe such as surface area, shape, thickness, specific gravity, salinity, temperature and drift velocity of the ice floes. One set of measurements was carried out closely after breakup by July 15 to July 22 and a second set in the open water season from September 18 to September 21. Triangular plate tests, circular plate tests and bore hole jack tests were the insitu tests used to obtain strength parameters. (Au)

G-26476
Island defense system tests / Trofimenkoff, P.N.
[Calgary : Distributed by APOA], 1976.
2 microfiches : ill., figures, tables ; 11x16cm.
(APOA project no. 111 : Evaluation of ice defence systems for artificial islands. Report)
Appendices.
References.
ACU, NFSMO

A total of 11 tests were conducted. Of these, 5 tests were performed to study the dredged island defense system slots, 2 to study the failure of a wide thermal crack and 4 to study the buckling of ice. The 4 buckling tests were performed on Eagle Lake and the remainder on the Hay River. The analyses of the tests indicate the following: (1) The initial failures of the dredged island defense slots were found to generally depend upon the thickness of the thinnest connecting ice at the slots. The initial failure was generally a bending failure at an average pressure of less than 100 psi. Secondary failure pressures appeared to be rather independent of the slot configurations and did not exceed an ice pressure of 50 psi. (2) The simulated thermal crack failed at approximately 1/3 the load required to fail an integral sheet, although the thickness of the connecting ice at the crack was 1/2 the natural ice thickness. The mode of failure was a bending failure in the connecting ice at the slot. (3) Reasonable agreement was found between elastic buckling theory and experiment for the 4 buckling tests that were performed. The experimental results were found to be very sensitive to the column and boundary conditions, as can be expected from theory. An insufficient number of tests were performed to draw any conclusions regarding the possible dependence of the buckling strength of ice on strain rate and aspect ratio. (Au)

G-26670
Landfast ice movement - Mackenzie Delta 1973-74 / Spedding, L.G.
[Calgary : Distributed by APOA], 1975.
4 microfiches : figures, charts, tables ; 11x16cm.
(APOA project no. 67 : Ice movement in the Beaufort Sea, 1963/74. Report)
Appendices.
ACU, NFSMO

The movement of the landfast ice is primarily dependent on wind. ... Winds under 5 mph and changes in wind direction are enough to keep the ice in motion. This motion is of a cyclic nature and can be correlated to wind velocity increases and decreases. In storms or periods with winds over 15 mph, movements up to 5 feet per hour around the Barrier Islands can be expected. After January movements closer to shore will decrease. The motion becomes more severe as one nears the shear zone. Ice motion at the shear zone generally seems to occur during storms and is generally in the direction of the wind. Movements up to 12 feet per hour can be expected. The fast ice seems to act as an elastic material. ... Wind stress causes movement of the ice and on removal of this stress the ice usually returns to near its initial position causing the observed cyclic type motions. ... (Au)

G-26697
An analytical study of ice scour on the sea bottom / Fenco Consultants Limited.
[Calgary : Distributed by APOA], 1975.
5 microfiches : figures, tables ; 11x16cm.
(APOA project no. 69 : An analytical study of ice scour. Report)
Appendices.
References.
ACU, NFSMO

... The study covers all aspects of scouring: a review of literature; environmental factors required for study; types of ice formations;

marine sediments; plus several idealistic mathematical models to predict scour for different situations. In particular, a dynamical model has been developed (by solving the basic equations of motion of a body being driven into a sloping sea bed) and the solutions compared with other simpler model solutions which use either energy conservation or static equilibrium conditions. Finally, suggestions for model tests are given which could be used to verify the mathematical solutions presented here. ... (Au)

G-26751
Ice island count, southern Beaufort Sea /
Spedding, L.G.
[Calgary : Distributed by APOA, 1975-1977]
4 microfiches : ill., figures, tables ;
11x16cm.
(APOA project no. 99 : Ice island count -
Southern Beaufort Sea 1974, 1975 and 1976.
Report, no. 1-3)
Contents: no.1 - 1974. - no.2 - 1975. - no.3 -
1976.
References.
ACU, NFSMO

Purpose: To record the invasion of ice islands and ice fragments into the coastal waters of the Southern Beaufort Sea. Because of their large size and thickness, they could present severe problems to offshore operations. Collection of this type of data on a yearly basis is considered necessary to a meaningful risk analysis of the collision of ice islands with fixed structures. (Au)

G-29190
An investigation of multi-year pressure ridges and
shore pile-ups / NORCOR Engineering and
Research Limited. Kovacs, A. Dickins, D.F.
Wright, B.
[Calgary : Distributed by APOA], 1975.
1 microfiche : ill., photos. ; 11x16cm.
(APOA project no. 89 : Study of the thickness
of multi-year pressure ridges. Report)
References
ACU, NFSMO

This report presents the findings of a field study designed to generate fundamental data on multi-year pressure ridges and floes in the near shore zone of the Beaufort Sea. The programme investigated the geometry of 11 floating multi-year ridges or ridge fragments, the sail height and keel depth of four multi-year ridge fragments, and the cross sections of two large shore ice pile-ups. Most of the ridges were situated within a 20 mile radius of Sachs Harbour, N.W.T. Measurements were made during the period from May 4 to May 18, 1975. (Au)

G-29254
Remote estimation of the properties of sea ice.
Beaufort Sea field trip report - March 1979 /
Rossiter, J.R. Butt, K.A.
St. John's : C-CORE, 1979.
v, 35p. : ill. ; 28cm.
(C-CORE publication, no. 79- 9)
(Data report - Memorial University of
Newfoundland. Centre for Cold Ocean Resources
Engineering)
ACU, NFSMO

The main objective of this experiment was to collect data required for construction and design of an operational radar system to estimate the thickness and strength of sea ice from an airborne platform. Emphasis was placed on increasing our knowledge and understanding of ice conditions, particularly the in situ electrical properties of sea ice. ... A list of agencies and personnel involved in the program is given .... The main pieces of equipment used are listed ... A description of the sites and a summary of the data as collected are presented ... and the positions of the sites are shown ..... (Au)

G-29939
The nutcracker ice strength tester and its
operation in the Beaufort Sea / Croasdale, K.R.
([Proceedings] - IAHR Symposium : Ice and its
Action on Hydraulic Structures, 1st, Reykjavik,
Iceland, 7-10 Sept., 1970. [Delft? : s.n.,
1971], section 6.4, ill.)
(APOA project no. 1 : Nutcracker ice strength
tests, 1969-70. Report, no. 2)
References.
ACU, NFSMO

Growing energy consumption and dwindling reserves in the populated regions is spurring the search for oil in the frontier areas of the far North. This paper describes the work sponsored by several Canadian oil companies aimed at providing ice strength data for the design of offshore structures for Arctic waters. The design and operation of a novel ice testing device is described. Some of the results obtained during tests in January and February of 1970 are presented and discussed. (Au)

G-30040
Distribution of the ice thickness in the Beaufort
Sea / Ramseier, R.O. Vant, M.R. Arsenault,
L.D. Gray, L. Gray, R.B. Chudobiak, W.J.
Victoria, B.C. : Beaufort Sea Project, Dept. of
the Environment, 1975.
98p. : ill., maps ; 28cm.
(Technical report - Canada. Beaufort Sea
Project, no. 30)
(APOA project no. 72 : Beaufort Sea
Environmental Program. Report, no. 30)
Cover title: Distribution of sea ice thickness
in the Beaufort Sea.
Bibliography: p.24-28.
ACU, NFSMO

Although it was not possible to measure sea ice thickness directly, monthly maps indicating the distribution of first-year and multiyear ice for the entire Beaufort Sea region were prepared from Nimbus 5 passive microwave imagery. Detailed investigation of the shear zone was performed using 13.4 GHz scatterometer and X-band SLR imagery for April 1975. A description of the various sensors employed and an outline of the development of a UHF radar for direct measurement of sea ice thickness are included. (Au)

G-40517
The distribution and movement of Arctic ice : the
southern Beaufort Sea / Pallister, J.M.
(APOA review, v. 3, no. 1, Mar. 1980, p. 8-20,
ill., photos.)
References and bibliography: p.18.
ACU, NFSMO

... Commencing in 1970, a number of ... companies cooperated in joint research to determine whether petroleum operations could be conducted in ice-covered waters. Studies by APOA were undertaken in order to measure and predict the presence and behaviour of ice features in the southern Beaufort Sea. A number of these studies had as their aim to record not only the movement and location of ice, but to understand better the origin of ice masses and the causes of their movements. An eventual goal was to develop an ability to predict the magnitude and type of ice that may affect petroleum operations. ... Numerous studies of the strength of ice were conducted. Results of research into the movement and location of ice would also be valuable in assessing the feasibility of transportation both through the ice by marine vessels, and over the ice by ground transportation . Studies on ice scouring, the grounding of ice masses into the seafloor were undertaken .... One of the results of the studies has been to adapt techniques of remote monitoring to record the presence, movement and magnitude of the ice features. [APOA projects reviewed are: nos. 19, 32, 33, 39, 51, 53, 54, 67, 69, 89, 99, and 113] (Au)

G-41106
Field studies of the strength and physical
properties of a multi-year ice pressure ridge
in the southern Beaufort Sea / Imperial Oil
Limited. Gladwell, R W
[Calgary : Distributed by APOA], 1977.
2 microfiches : ill., figures, tables ;
11x16cm
(APOA project no. 91 . Strength of multi-year
pressure ridges. Report, no. 1)
Original publisher: Imperial Oil Limited.
ACU, NFSMO

... The ... report contains salinity, temperature, density and strength profiles for selected core sample locations on the multi-year ridge that was the subject of study. In addition, flexural strengths of large beams (1 foot square and 8 inches square) quarried from the ridge are presented and compared to flexural strengths of small beams (1 inch square) cut from the large beams. (Au)

G-41114
Structural analysis of the ice encountered in
Ridge Camp 1975 / Arctec Canada Limited
Imperial Oil Limited [Sponsor]
[Calgary : Distributed by APOA], 1976
2 microfiches : ill., figures, tables ;
11x16cm
(APOA project no. 91 . Strength of multi-year
pressure ridges. Report, no. 2)
References.
ACU, NFSMO

This crystallographic analysis leads to a better knowledge of the types of ice encountered in a ridge. There is, of course, no obvious repetitious pattern on which would be ordered the different types of ice but a fair idea of the genesis of the ridge can be obtained and general features can be pointed out. (Au)

G-42986
Inertial oscillations in floe motion over the
Beaufort Sea - observations and analysis /
Khandekar, M L.
(Atmosphere-ocean, v. 18, no. 1, 1980, p. 1-14,
ill.)
References
ACU, NFSMO

A simple model developed by McPhee (1978) has been used in this study for simulating observed oscillatory movement of floe motion in the Beaufort Sea. The model uses the momentum equation integrated over ice, and the upper ocean driven by surface wind stress. Floe velocity is related to the total ice and water transport by considering an idealized current profile for the ocean boundary layer. Using hourly wind values for dilling site Kopanoar (70 deg. 23 sec. N, 135 deg. 06 sec. W) oscillations in the floe velocity are simulated with reasonable success. The possibility of incorporating this model into the Computerized Prediction Support System (CPSS) of the Canadian Atmospheric Environment Service is discussed. (Au)

G-45233
Orbital sensing of Mackenzie Bay ice dynamics /
Dey, B.
(Arctic, v. 33, no. 2, June 1980, p. 280-291,
ill., figures, tables)
References
ACU, NFSMO

... The results of studies using satellite images of Mackenzie Bay during the break-up and freeze-up periods are presented in maps and tables. These indicate important temporal variations in the processes of bay ice break-up and freeze-up. Though the Mackenzie Bay break-up proceeds from the south and from the north, the southern melt rate is faster because of an influx of warm water from the Mackenzie River. The freeze-up proceeds from south to north, i.e., from the fresh water area to the saline water area of the bay. The study of Mackenzie Bay ice dynamics is important because of the barge traffic through the Mackenzie River and also because of offshore drilling activities in the Beaufort Sea. (Au)

G-45381
Third Canadian Geotechnical Colloquium : ice
forces on wide structures / Kry, P R
(Canadian geotechnical journal, v. 17, no. 1,
Feb. 1980, p. 97-113, ill., photos.)
References.
ACU, NFSMO

Successful use of artificial islands as exploration drilling platforms in the southern Beaufort Sea requires an understanding of the interactions of ice sheets with wide structures. ... Four primary ice failure modes occur against wide structures: flexure, rubble formation, buckling, and crushing. The horizontal forces associated with these modes differ by more than two orders of magnitude depending on structure geometry, ice sheet properties, and ice movement rates. Structure width influences the occurrence of ice failure modes, the ice failure stresses, and the total forces that can be exerted on a structure by an ice sheet. The relative inability to clear failed ice around wide structures (compared with narrow structures) leads to rubble formation when ice movement is continuous. After consolidation, the resulting rubble field can amplify forces exerted on the structure. (Au)

G-45799
The application of NOAA satellite imagery to
verify and supplement official Atmospheric
Environment Service thaw-date observations /
Olson, R
(Albertan geographer, no. 16, 1980, p. 13-25,
ill., figures)
References.
ACU

... The intent of this study is to illustrate the utilization of satellite imagery to verify official A.E.S. ice break-up dates on selected western Canadian lakes and to supplement the A.E.S. data base with a break-up date for an unobserved lake in northern Canada. ... There are inherent errors involved in monitoring ice conditions from the shores of large lakes. The vastness of Canada, with its many lakes, necessarily means that surface-based reconnaissance has limitations. Yet, satellite imagery is a largely untapped data source for systematic observations of ice conditions. The imagery itself cannot replace surface-based observations, but it can complement and serve to verify the data from the existing network. ... (Au)

G-48020
Dynamics of sea ice studied / Hoare, R.D.
(APOA review, v. 3, no. 2, Aug. 1980, p. 6-7, ill., photos.)
ACU, NFSMO

A joint field study of extreme ice dynamics and features was conducted in April 1980 off the northwest coast of the Canadian Archipelago by Dome Petroleum Ltd. on behalf of its partners. A number of worst case conditions were investigated, and dramatic new light has been thrown on the ice regime of the area, features that may drift into the south-east Beaufort Sea. (Au)

G-55417
Landfast ice motion observed in the Mackenzie delta region of the southern Beaufort Sea in the 1972/73 winter / Spedding, L.G.
(POAC 79 : the Fifth International Conference on Port and Ocean Engineering under Arctic Conditions, at the Norwegian Institute of Technology, August 13-18, 1979, proceedings, v. 1, p. 23-37, ill., map, photo.)
References
ACU, NFSMO

During the winter of 1972/73 movement was recorded at 11 remote stations deployed on the landfast ice in the MacKenzie Delta region. The measurements were made with a spring-tensioned reel/wire system connecting the ice with the sea bed. ... Stations deployed at water depths of 3 metres in locations protected by barrier islands were displaced an average of 4 metres in a five-month period. Other stations deployed outside the barrier islands at water depths up to 20 meters recorded displacements between 0.1 and 14 metres during April and May 1973. During this period continuous motion of an oscillatory nature was recorded. ... Over the winter the landfast ice sheet for 50 km along the coast had been displaced towards the shore. It is thought the oscillatory motion recorded at the outer stations may be the result of varying polar pack ice pressure at the boundary of the landfast ice coupled with an elastic response of the ice sheet. Variation in motion between stations can be explained by the presence of pressure ridges and cracks. (Au)

G-55425
Some influences of ice rubble field formations around artificial islands in deep water / Allyn, N. ; Wasilewski, B.R.
(POAC 79 : the Fifth International Conference on Port and Ocean Engineering under Arctic Conditions, at the Norwegian Institute of Technology, August 13-18, 1979, proceedings, v. 1, p. 39-55, ill., photos.)
References
ACU, NFSMO

This paper presents some results of recent design studies on the effect of the ice environment on Artificial Production Islands in deep water in the Canadian Beaufort Sea. ... The influence of the formation and structure of the rubble field on forces and sliding resistance of a deep water artificial island are studied. Evidence is presented showing the formation of such rubble fields in the shear zone. An example demonstrates the effect of various ice rubble field parameters on the safety of an island. (Au)

G-55468
Multi year pressure ridges in the Canadian Beaufort Sea / Wright, B. ; Hnatiuk, J. ; Kovacs, A.
(POAC 79 : the Fifth International Conference on Port and Ocean Engineering under Arctic Conditions, at the Norwegian Institute of Technology, August 13-18, 1979, proceedings, v. 1, p. 107-126, ill., map, photos.)
References
ACU, NFSMO

... the findings of a field study designed to generate fundamental data on multi-year pressure ridges in the near shore zone of the Canadian Beaufort Sea are presented. The study investigated the geometry of eleven floating multi-year ridges or ridge fragments and the sail height and keel depth of four additional multi-year ridge fragments. ... It is also shown that the ice comprising multi-year ridges is solid with the interblock voids existing at the time of their formation being completely filled with ice. The data obtained from this study is being used in the engineering design of exploration and production systems for the Beaufort Sea. ... (Au)

G-55700
Existence of oriented sea ice by the Mackenzie Delta / Vittoratos, E.S.
(POAC 79 : the Fifth International Conference on Port and Ocean Engineering under Arctic Conditions, at the Norwegian Institute of Technology, August 13-18, 1979, proceedings, v. 1, p. 643-650, ill., map, photos.)
References
ACU, NFSMO

... the crystallography of the sea ice by the Mackenzie Delta was investigated at four locations in the spring of 1978. It was observed that the c-axis lies in the horizontal plane and has a preferred azimuthal orientation for distances of hundreds of metres. Preferred orientations were also observed by use of impulse radar in the vicinity of Pullen Island. These results are similar to those reported for offshore Alaska. ... (Au)

G-56677
Implications of structure width for design ice forces / Kry, P.R.
(Physics and mechanics of ice, papers / International Union of Theoretical and Applied Mechanics Symposium, Technical University of Denmark, Copenhagen, August 6-10, 1979. Edited by Per Tryde. New York, Springer-Verlag, 1980, p. 179-193, figures, tables)
References
ACU, NFSMO

Hydrocarbon exploration activities in the Canadian Southern Beaufort Sea have provided incentives to further develop our knowledge of ice and its interactions with structures. ... To have sufficient surface area for drilling operations and personnel quarters, these islands represent very wide structures compared to the maximum ice thickness. Their width is further enlarged by ice rubble fields formed by early winter ice motions. ... a rubble field ... provides protection against subsequent ice ride-up. However, the rubble field increases effective structure width and this amplifies forces on the structure. ... forces arise from effective stresses generated by ice failure at the periphery of the rubble field. The extensive width increases the importance of localized failures due to irregularities at the failure interface. Such non-simultaneous failure implies that effective stresses are subject to statistical variations such that design stresses for wide structures are less than peak values appropriate for narrow structures. (Au)

G-57908
Remote estimation of the properties of sea ice, ice core analysis, Beaufort Sea, March 1979 / Langhorne, P.J. ; Rossiter, J.R. ; Kelliher, T.E.

St. John's, Newfoundland : Centre for Cold
Ocean Resources Engineering, 1980.
x, 172p. : ill., figures, tables ; 28cm.
(C-CORE publication, no. 80- 7)
(Data report - Memorial University of
Newfoundland. Centre for Cold Ocean Resources
Engineering)
(Report - Scott Polar Research Institute, no.
80- 1)
ISBN 0-88901-027-7
Appendices.
References.
ACU, NFSMO

In March 1979, a linearly polarized, impulse radar system was used at a site of shorefast, undeformed, first-year ice, in the Beaufort Sea, approximately 70 km north-east of Tuktoyaktuk, N.W.T. It was found that the magnitude of the radar reflection from the ice-water interface varied as the antenna was rotated on the ice surface. Grid lines were marked out at 10 m intervals aligned to maximum and minimum radar response, and ice cores were taken at the intersection of each of these lines. ... C-axis orientation and crystal and brine pocket size data are presented here ... a listing of all crystallographic information and plots of the optic axis data on equal-area projection diagrams are given. A plot of the brine pocket data and empirical relations describing their dependence on depth are also presented. The ocean current circulation in the region of this site is briefly reviewed.
(Au)

G-60321
An analysis of ice profiles obtained by submarine
sonar in the Beaufort Sea / Wadhams, P.
Horne, R.J.
(Journal of glaciology, v. 25, no. 93, 1980, p.
401-424, figures, tables)
References
ACU, NFSMO

A profile of the ice cover in the southern Beaufort Sea was obtained by the submarine U.S.S. Gurnard in April 1976, using a narrow-beam upward-looking sonar ... A statistical analysis was carried out over contiguous 50 km sections to yield probability-density functions of the drafts of ice and of level ice, the distributions of keel spacings and drafts, and the frequencies and widths of leads. Two distinct types of ice cover were found in the profile. The first ... consisted of heavily ridged ice with mean drafts of up to 5.1 m. The rest of the track ... consisted of a homogeneous ice cover with a mean draft of 3.7 m ... (Au)

G-62189
NRC ice property measurements during the Canmar
Kigoriak trials in the Beaufort Sea, winter
1979-80 / Frederking, R.M.W. Timco, G.W.
Ottawa : National Research Council of Canada,
1980.
[63]p. : ill., figures, table ; 28cm.
(DBR paper, no. 947)
(NRCC - Canada. National Research Council, no.
18722)
References
ACU, NFSMO

This paper sets forth the results of ice properties measurements carried out during the ice breaking trials of the "CANMAR KIGORIAK" in the winter of 1979-80. The measurements included crystallographic analysis to establish ice type and structure, temperature and salinity profiling of ice cores, and uniaxial compression and "Brazil" strength tests. These measurements were all performed on board ship at the time of the trials. The ice analyzed included samples from both first-year ice covers and multi-year pressure ridges. ... (Au)

G-62987
Ice covered waters - a new offshore petroleum
environment / Pallister, A.E. Pallister, J.M.
(APOA review, v. 1, no. 2, May 1978, p. 12-15,
ill., photos.)
References.
ACU, NFSMO

The article presents a description of the various types of sea ice encountered in Arctic waters, with particular reference to the Beaufort Sea region. This is followed by a description of APOA Project no. 17, "Pressure ridge and ice island scouring" the most significant findings of which were "the large thicknesses of ice ridges, the relatively small depths of bottom scours, and the absence of cavities in multi-year ridges." The article points out that this project, and others since conducted, have greatly increased the knowledge required for oil and gas exploration and for transportation in these ice infested waters.
(ASTIS)

G-65226
Ice-scour tracks on the Beaufort Sea continental
shelf / Wahlgren, R.V.
Ottawa : National Library of Canada, 1979.
2 v. : ill., figures (folded in case), tables ;
29 cm.
(Canadian theses on microfiche, no. 41683)
Thesis (M.A.) - Carleton University, Ottawa,
1979. - xxi, 183p.
Appendices.
References.
Also available in microfiche
ACU, NFSMO

Quantitative geomorphological analyses are made of ice-scour tracks created by drift ice scraping the seabed of the southeastern Beaufort Sea. The data consists of measurements from echograms and sonograph mosaics ... The results ... include: grounding ice having less than 45 m draft usually does not dig further into the sediment as the ice keel proceeds upslope; keels approaching normal to the slope leave shorter tracks than keels which travel along the slope; ice floe interaction processes can explain the various planimetric forms of tracks; deep ice keel drafts and tracks are fairly rare events; and excess pore water pressure beneath a moving, grounded ice keel evidently can support negative buoyancy of the keel. The ice-scouring process is analysed using an energy flow model which is adaptable to computer simulation. (Au)

G-68306
Winter ice motion in the southern Beaufort Sea
from RAMS buoy data analysis 1975-1978 /
McGonigal, D. Wright, B.D. Gulf Oil Canada
Limited.
(Intermaritec-80, conference report /
International Conference on Marine Sciences and
Ocean Engineering, Hamburg, Germany, 1980.
Edited by C. Kruppa and G. Clauss. Hamburg :
Hamburg Messe und Congress GmbH, 1980. p.
375-389, figures, tables)
References.
NFSMO

Significant oil and gas discoveries in the Southern Canadian Beaufort Sea have given new impetus to development schemes for the area. ... The most recent discoveries have been in the 30-100 metre water depth range, which lies beneath the zone of moving pack ice. Since 1975, winter ice movement in this zone has been monitored by several agencies using satellite-reporting RAMS ice tracking buoys. Data from 20 buoys which have drifted across the area have been compiled. ... In this paper, samples of drift tracks and daily ice movement statistics are presented, the data from the three winters is summarized, and the application of this data to oil industry requirements are discussed particularly with reference to engineering design and the fate of an oil spill in moving ice. (Au)

G-69639
Experimental use of real time SAR imagery in
support of oil exploration in the Beaufort Sea
/ Mercer, J.B. Lowry, R.T. Levins, S.K.
(Proceedings - Canadian Symposium on Remote
Sensing, 6th, Halifax, Nova Scotia, 21-23 May,
1980 / Edited by Thomas J. Alfoldi. Ottawa :
Canadian Aeronautics and Space Institute,
[1980], p. 143-152, figures)
References
NFSMO

Synthetic Aperture Radar imagery, generated in real time, has been used for the first time to support an Arctic marine operation. During the latter portion of Dome Petroleum's late season drilling program (November 1979) in the Beaufort Sea, the SAR-580 flew daily missions in order to provide real time "snap shots" of the ice conditions in the vicinity of the operations. The purpose of the program was to assist both the icebreaker support of the drillship and the subsequent navigation back to harbour. Near real time imagery was made available to the drillship initially, and later to the icebreaker Kigoriak, by two methods - VHF data link and by "local mail". ... To provide the context for this SAR application, a review of Beaufort Sea ice conditions is presented along with a brief discussion of the problems and techniques for interpretation of the SAR imagery. The SAR, its downlink and operational performance, are described along with an outline of an improved system planned for 1980. The conclusion of marine operations personnel associated with this project was that SAR should form a valuable support tool for future winter arctic operations. (Au)

G-69647
Airborne impulse radar sounding of sea ice /
Rossiter, J.R. Butt, K.A. Gamberg, J.B.
Ridings, T.F.
(Proceedings - Canadian Symposium on Remote
Sensing, 6th, Halifax, Nova Scotia, 21-23 May,
1980 / Edited by Thomas J. Alfoldi. Ottawa :
Canadian Aeronautics and Space Institute,
[1980], p. 187-194, figures)
(C-CORE publication, no. 80- 6)
References
NFSMO

Airborne impulse radar, operated from helicopter and Twin-Otter, was used in March-April 1979 to estimate the physical properties of sea ice in the Beaufort Sea and Lake Melville, Labrador. Concurrent measurements included: augered thickness, salinity, temperature, crystal fabric, electrical properties of the ice, simultaneous aerial photography, and synthetic aperture radar imagery. Impulse radar centre-frequency of 80, 100, 200 MHz appears to give the best trade-off penetration vs resolution and antenna size. Data collected below 30 m elevation have reduced side-scatter from the ice surface. Speeds below 50m/s are required with the current hardware to achieve coherence from scan-to-scan. Thickness estimates are excellent for fresh and brackish ice, and are good for undeformed first-year sea ice about 1-2m thick. Areas of fresh water melt pools that have only experienced surface refreezing show thickness profiles that warrant further examination. Bottom returns from multiyear ice are sporadic, although floes up to 14m have been sounded. Ridges are not usually penetrated, but can be easily detected. Data processing algorithms are under development to characterize the ice further using the strength of the returns. Airborne impulse radar appears useful for routine estimation of the "third-dimension" of ice properties, particularly in conjunction with aerial remote sensing surveys. (Au)

G-69663
Single and multiple parameter microwave signatures
of sea ice / Hawkins, R.E. Livingstone, C.E.
Gray, A.L. Okamoto, K. Arsenault, L.D.
Pearson, D.E. Wilkinson, T.L.
(Proceedings - Canadian Symposium on Remote
Sensing, 6th, Halifax, Nova Scotia, 21-23 May,
1980 / Edited by Thomas J. Alfoldi. Ottawa :
Canadian Aeronautics and Space Institute,
[1980], p. 217-229, figures, tables)
NFSMO

Simultaneous 13.3 GHz dual-polarized fanbeam scatterometer data, 19.35 GHz horizontally polarized profiling radiometer data and nadir-looking aerial photography with corresponding X- and L-band SAR (Synthetic Aperture Radar) imagery were collected with the CCRS Convair-580 in March 1979 in the Beaufort Sea and in the Eastern Arctic in April 1979. This data set was analysed to compile statistics on 11 WMO (World Meteorological Organisation) classes of sea ice, ranging from calm open water to multi-year ice and ice island. (Au)

G-69671
Radar detection of sea-ice ridges and icebergs in
frozen oceans at incidence angles 0 deg. to 90
deg. / Pearson, D.E. Livingstone, C.E.
Hawkins, R.E. Gray, A.L. Arsenault, L.D.
Wilkinson, T.L. Okamoto, K.
(Proceedings - Canadian Symposium on Remote
Sensing, 6th, Halifax, Nova Scotia, 21-23 May,
1980 / Edited by Thomas J. Alfoldi. Ottawa
Canadian Aeronautics and Space Institute,
[1980], p. 231-241, figures)
References
NFSMO

Dual-polarized 13.3 GHz scatterometer data and X-Band SAR data, collected in the Beaufort Sea and in the eastern Arctic, during the SURSAT sea-ice experiment deployments in March 1979 and April 1979 respectively, have been analyzed to determine the radar contrasts (signal to sea-ice clutter) between sea-ice ridges and the surrounding sea ice in the Beaufort Sea and between icebergs and the surrounding sea ice in the eastern Arctic. The effects of radar resolution cell size on ridge detectability were examined using aerial photography to estimate ridge dimensions. Over the incidence angle range observed, the contrast between ridges and the surrounding sea-ice is nearly independent of incidence angle for all ice types. Cross-polarized radars produce larger ridge contrasts than like-polarized radars, with the largest contrasts and greatest polarization dependence being observed for rough first-year ridges in smooth first-year ice and the smallest contrasts and least polarization dependence being observed for multi-year ridges in multiyear ice. The contrast between icebergs and the first-year ice background is nearly independent of incidence angle over the observed range. Cross polarized radars enhance iceberg detectability but synthetic aperture radars operated at satellite incidence angles are found to be unsuitable for iceberg detection. (Au)

G-70173
Measurements of sea-ice stresses near grounded
obstacles / Sackinger, W.M. Nelson, R.D.
(Journal of energy resources technology, v.102,
no. 3, Sept. 1980, p. 144-147, figures)
References.
NFSMO

Stresses were measured in multiyear sea ice near a grounded floe island. Compressive stresses as high as 250 psi (1.72 MPa) were observed, in the form of impulses. A second installation in annual sea ice near a grounded pressure ridge showed tensile stress of 100 psi (0.69 MPa), followed by crack formation. These stresses were localized to a range of the order of 100m. Localized compressive stresses in multiyear ice near grounded offshore structures may exceed 250 psi (1.72 MPA), and impulsive loading should be expected. (Au)

G-70211
Landfast ice movement - Mackenzie Delta 1974/75 / Imperial Oil Limited. Spedding, L.G.
[Calgary : Distributed by APOA], 1975.
7 microfiches : ill., figures, tables ; 11x16cm.
(APOA project no. 83 : Landfast ice movement in the Beaufort Sea - 1974/75. Report)
Appendices.
ACU, NFSMO

This report covers the qualitative analysis of the ice movement recorded at eleven locations on the Landfast Ice between Mackenzie Bay and Kugmallit Bay during the period November 1974 to May 1975. The measurements were made with a spring tensioned reel/wire system connecting the ice with the sea bed. At all stations a telemetry system allowed readings to be taken hourly from a master station in Inuvik. Wind and temperature information was also collected. (Au)

G-70220
The flexural strength and Young's modulus of land fast ice by the Mackenzie River delta / Imperial Oil Limited. Kry, P.R.
[Calgary : Distributed by APOA], 1975.
2 microfiches : ill., figures, tables ; 11x16cm.
(APOA project no. 84 : In-situ ice property measurement in the Beaufort Sea. Report)
Appendices.
ACU, NFSMO

Two field trips to the Beaufort Sea by the Mackenzie Delta were made .... The ice was determined to be essentially fresh S2 ice with a crystal size ... of 1.4 inches in a horizontal plane and 3.5 inches in a vertical direction. Brazil test results gave a mean tensile strength of 105 +- 27 psi. The mean flexural strength determined from in situ cantilever beams failed elastically with the bottom surface in tension was 78 +- 16 psi. The mean value for Young's modulus was (1.46 +- 0.54) x 1,000,000 psi. Load rate within the range 3 to 300 psi/sec and temperature ... -25 deg. C to -1 deg. C have no effect on either flexural strength or Young's modulus. The flexural strength, ... depended on the size of the sample. Simple considerations applying the concept of a mean distance between flaws, explained the variation if the mean distance between flaws were 10 inches, suggesting that the crystal boundaries are the relevant flaws for fresh ice. (Au)

G-70262
Ice conditions and ice defense at Netserk B-44 and Adgo P-25 during the winter of 1974-75 / Imperial Oil Limited. Metge, M.
[Calgary : Distributed by APOA], 1976.
1 microfiche : ill., figures ; 11x16cm.
(APOA project no. 104 : Measurement of ice pressure on artificial islands - phase I. Report, no. 1)
ACU, NFSMO

During the winter of 1974-75 the ice conditions at Adgo P-25 and Netserk B-44 were periodically monitored visually to determine the interaction characteristics of the ice sheet and the islands. Most significantly the ice sheet at Netserk never became fully integral with or frozen-in to the island. Instead the ice tended to fail along a set of circumferential cracks .... We ... call this failure mode "continuous crushing." Defense systems in the form of circumferential rows of dry and wet slots were put in place using a Ditch Witch trenching machine. ... (Au)

G-70270
Ice stress measurement at Adgo Island / Nelson, R.D. Sackinger, W.M. Imperial Oil Limited [Sponsor]
[Calgary : Distributed by APOA], 1974.
1 microfiche : figures, table ; 11x16cm.
(APOA project no. 104 : Measurement of ice pressure on artificial islands - phase I. Report, no. 2)
References.
ACU, NFSMO

This report presents the results of a project to measure stresses in the ice surrounding Adgo Island in the Mackenzie Delta. Stiff load transducers embedded in the ice and monitored by battery-powered electronic amplifiers and recorders were used as the measuring system. (ASTIS)

G-70289
Ice stress measurements at Adgo and Netserk islands, 1974-1975 / Nelson, R.D. Sackinger, W.M. Imperial Oil Limited [Sponsor]
[Calgary : Distributed by APOA], 1976.
2 microfiches : figures, tables ; 11x16cm.
(APOA project no. 104 : Measurement of ice pressure on artificial islands - phase I. Report, no. 3)
Bibliography.
ACU, NFSMO

This project was begun in November, 1974, ... to identify the magnitudes of stresses in the ice surrounding the artificial island drilling platforms which Imperial Oil has constructed in Mackenzie Bay, N.W.T. Two islands were to be instrumented: the first, Adgo P-25, is in five to eight feet of water depth; Netserk, the second, is in ten to twelve feet of water. Specially-constructed low-compliance load cells were to be embedded in the ice near each island. ... A total of fifteen stations were placed around Netserk during the course of the winter .... Six stations were placed at Adgo .... In general, the sensors were oriented so as to measure both compressive and tensile stress along an axis passing through the center of the drilling rig tower and were located uniformly around the island. ..., the occurrence of compressive stresses at the various Netserk sites appear to correlate well with ice motion in the area. ... (Au)

G-70300
Ice pressure measurements Netserk F-40, 1975-76 / Imperial Oil Limited. Strilchuk, A.R.
[Calgary : Distributed by APOA, 1977]
5 microfiches : ill., figures, tables ; 11x16cm.
(APOA project no. 105 : In-situ pressure measurements around artificial islands in southern Beaufort Sea - phase II. Report, no. 1)
Appendices.
ACU, NFSMO

report describes the measurement of in-situ ice pressures around a dredged exploration drilling island (Netserk F-40) in the southern Beaufort Sea during the winter 1975/76. The project was initiated to provide additional data to that collected around other islands in the two previous years. A sensor developed by ... Imperial Oil Limited was used to obtain the data. As well, ice-to-island movement was monitored to correlate with the pressures. ... Results of the measurements have been used to estimate the force exerted by the moving ice sheet on the island through the use of a simple model. ... (Au)

G-70327
Ice conditions around artificial islands, 1975-1976 / Imperial Oil Limited. Gladwell, R.W.
[Calgary : Distributed by APOA, 1977].
3 microfiches : ill., figures, photos., tables ; 11x16cm.
(APOA project no. 105 : In-situ pressure measurements around artificial islands in southern Beaufort Sea - phase II. Report, no. 3)
ACU, NFSMO

... documents the observed ice conditions during the winter of 1975/76 in the vicinity of Netserk F-40, Ikkatok J-17, Netserk B-44, Immerk, Adgo F-28, Adgo C-15 and Adgo P-25. Principal interest was focussed on Netserk F-40 from which drilling was being conducted since it was in the deepest water and sustained the most significant ice action. This report marks a significant advance in the understanding of ice-island interaction and documentation of ice failure modes against a wide structure. ... (Au)

G-70335
Landfast ice movement - Mackenzie Delta 1975/76 / Imperial Oil Limited. Spedding, L.G.
[Calgary : Distributed by APOA, 1977].
2 microfiches : ill., figures, tables : 11x16cm
(APOA project no. 105 : In-situ pressure measurements around artificial islands in southern Beaufort Sea - phase II. Report, no. 4)
Appendices.
References.
ACU, NFSMO

This report covers the analysis of the ice movement recorded at eleven locations on the Landfast Ice between Mackenzie and Kugmallit bays for the period November 1975 to May 1976. Reel/wire devices coupled to a telemetry system, allowed hourly readings to be recorded at a master station in Inuvik. The major portions of the stations were around Ikattok J-17, Netserk F-40 and Sarpik B-25 artificial islands. At Ikattok J-17 and Netserk F-40 locations additional movement information was acquired by reel/wire devices connecting the island to the ice sheet and by distimat surveys. Data from all these sources has been combined in this report to give a comprehensive picture of ice movement throughout the winter. (Au)

G-72133
Arctic offshore deepwater ice-structure interactions / Bercha, F.G. F.G. Bercha and Associates Limited. Stenning, D.G. Dome Petroleum Limited.
(Proceedings - Offshore Technology Conference, 11th, Houston, Texas, April 30-May 3, 1979. Dallas : Offshore Technology Conference, 1979, v. 4, p.2377-2386)
(OTC paper, 3632)
References.
Document not seen by ASTIS. Citation from MRIS.
NFSMO

A comprehensive theoretical analysis of deep-water Arctic ice-structure interactions was partially described in this paper. Following identification of a severity hierarchy of ice formations and associated strengths for the 200 ft. water depth range in the South Beaufort Sea, quasi-static and dynamic interactions of these formations with a steel monocone production platform structure were analyzed. ... Numerical results for representative quasi-static and dynamic cases were presented and discussed. Certain nongoverning interactive modes, including pile-up and in-plane ridge flexure, were also discussed briefly. Conclusions and recommendations for further work were presented. (MRIS)

G-73997
Determining river ice frequency from the tree record / Egginton, P.A.
(Paper - Canada. Geological Survey, 80- 1A, p. 265-270, figures)
References.
ACU

At some sites along Mackenzie River the frequency with which river ice reaches a given bank elevation can be determined using tree age. In the lower series where ice thrusting occurs, the process limits tree age. During breakup Mackenzie River ice may break into blocks 2 m or more in thickness; ice movement on shore is capable of crushing or uprooting trees. The maximum tree age at a given bank elevation is indicative of the amount of time that has elapsed since ice of sufficient magnitude to kill or uproot the tree has reached that elevation. In this manner approximate return periods of ice events can be determined. (Au)

G-81868
Seasonal effects on the microwave signatures of Beaufort Sea ice / Hawkins, R.K. Gray, A.L. Livingstone, C.E. Arsenault, L.D.
(Proceedings - International Symposium on Remote Sensing of Environment, 15th, Ann Arbor, Michigan, 11-15 May, 1981, v.1, p. 239-257, figures, table)
References.
ACU

Simultaneous data sets obtained from a scatterometer ... radiometer ... synthetic aperture radar ... infrared radiometer and an RC-10 camera have been collected from approximately the same region of the Beaufort Sea during March (1979), June (1980), and October (1980). It is shown that the microwave signatures characteristic of multi-year and first-year ice obtained under cold conditions during March change significantly under melt or near-melt conditions. ... Examples of quantitative signatures and statistics for the various seasons will be presented together with illustrative examples of X- and L-band SAR imagery. (Au)

G-82350
Hans Creek icing study : 1979 / Anderson, J.C. Gell, A.W. Canada. National Hydrology Research Institute. Snow and Ice Division. Canada. Northern Roads Environmental Working Group [Sponsor].
Ottawa : National Hydrology Research Institute, 1980.
vi, 12 leaves : ill., figures, photos, tables ; 28cm.
References.
ACU

... In May 1979, for the third consecutive year, an icing was observed on lower Hans Creek, N.W.T., just upstream of the proposed Inuvik-Tuktoyaktuk highway crossing (68 degrees 52'N; 133 degrees 31'W). In late May, there were three distinct zones of icing which encompassed a total area of approximately 11.4

x 114,000 square m of the river channel and flood plain. Across the mid-section of the largest zone, ice thickness at eight locations ranged between 0.69 and 1.14 m. At least three icing mounds had formed within the largest icing zone. Growth history of the icing was investigated by observing fracture surfaces on icing mounds and analyzing the crystal structure of ice cores. No overflow ice was observed at the proposed highway crossing in 1979, but the channel was bankful with bottom-fast ice. Prior to its disappearance, the icing caused streamflow diversion and stage elevation during the spring snowmelt flood. (Au)

G-83470
Field studies of eight first-year sea-ice pressure ridges in the southern Beaufort Sea / Imperial Oil Limited. Gladwell, R.W.
[Calgary : Distributed by APOA], 1976.
2 microfiches : ill., figures, tables ; 11x16cm.
(APOA project no. 75 : Field study of first-year ice pressure ridges. Report)
Appendices.
References.
ACU, NFSMO

... The project objectives were : 1. To measure the shape and physical properties of several first-year pressure ridges, both grounded and floating, in various water depths out to the annual pack ice of the Southern Beaufort Sea. This data will provide input to structural design criteria and logistics planning for oil industry activity in the area. 2. To establish a ratio of ridge keel depth to soil height necessary for the evaluation of total ridge size from aerial photographs. Data presented include cross-section drawings of the ridges; temperature, salinity, density and brine volume profiles of the constituent ice; results of Menard Pressuremeter strength tests; sea water salinities; analysis of sea bottom soil samples; and a report on ridge profiling using the Geophysical Survey Systems electromagnetic subsurface profiling techniques .... (Au)

G-83500
Ice pressure measurements at Arnak L-30 and Kannerk G-42 / Imperial Oil Limited. Semeniuk, A.
[Calgary : Distributed by APOA], 1977.
7 microfiches : ill., figures, photos., tables ; 11x16cm.
(APOA project no. 122 : In situ ice pressure measurements 1976/77. Report)
Appendices.
References.
ACU, NFSMO

This report presents the results of the in situ ice pressure measurement program conducted around Imperial Oil Limited's two artificial islands, Arnak L-30 and Kannerk G-42, during the winter of 1976-77. Results consist of pressures recorded by each of the sensors, ice-to-island movement data and calculations for evaluating the net effective pressure on the island. Recommendations for improving future programs are listed. (Au)

G-85227
Radar scatterometer measurements of sea ice : the SURSAT experiment / Delker, C.V. Onstott, R.G. Moore, R.K. U.S. Office of Naval Research [Sponsor].
Lawrence, Kansas : University of Kansas Center for Research, Inc., 1980.
ix, 90p. : figures, tables ; 28cm.
(Technical report - U.S. Office of Naval Research, TR 331- 17)
References.
ACU, NFSMO

The radar backscatter properties of sea ice were measured by a team from the University of Kansas Remote Sensing Laboratory during the month of March 1979. These measurements were made using both a surface-based and a helicopter-borne scatterometer system. Thick first-year sea ice, thin first-year sea ice, brackish sea ice, and fresh-water inland lake ice were investigated. These ice sites were located off or near the Canadian coast at Tuktoyaktuk, N.W.T., Canada. The investigations were part of the Beaufort Sea Ice Experiment segment of the Surveillance Satellite Project (SURSAT) of the government of Canada. This paper describes the field experiment, documents the sensors used, and presents the results obtained ... (Au)

G-85960
Modeling the mechanical energy budget of the Beaufort Sea ice cover / Pritchard, R.D. Thomas, D.R.
([Papers] - American Geophysical Union, Fall Meeting, San Francisco, California, 7-11 December, 1981. EOS, v. 62, no. 45, Nov. 10, 1981, p. 896)
Abstract only
ACU

A study of the transfer of mechanical energy from the atmosphere to the Arctic ice cover and then to the ocean suggests that energy measures can be used to compare modeled and observed behavior. The mechanical energy budget of the Beaufort Sea is used to evaluate a parameter study of yield surface shapes and strengths for a plastic sea ice model. These material parameters are optimized to tune the model. ... Wind and buoy data are then compared with simulations using the tuned model to study the energy budget of the Beaufort Sea ice cover during a 17-day period, which includes two storms (extreme ice motion events). The results show that the ice cover dissipates energy by deformation and transfers energy horizontally by stress flux divergence. The energy dissipation is shown to be concentrated in ridging and rafting of ice along the North Slope of Alaska and the Canadian Archipelago. (Au)

G-87785
Investigation of sea-bed scouring in the Beaufort Sea (phase III) / MacLaren Atlantic Limited. Gulf Oil Canada Limited [Sponsor].
[Calgary : Distributed by APOA], 1977.
3 microfiches : ill., tables ; 11 x 13cm.
(APOA project no. 133 : Investigation of sea-bed scouring in the Beaufort Sea (phase III). Report)
Appendix.
ACU, NFSMO

Echo sounding records obtained in the Beaufort Sea during 1975 and 1976 have been analyzed and the resulting ice scour data has been combined with the results of APOA projects 19 and 32 which included 1970 and 1972 data. Scouring was found to be common in depths of water from 50 to 150 ft. and deeper water. In an attempt to relate these scours to current processes, return periods were calculated using sedimentation assumptions. This indicates the number of years between scouring in a given nautical mile and was found to vary mainly between 10 and 100 years. (Au)

G-88986
Mid-winter mechanical properties of ice in the southern Beaufort Sea / Frederking, R.M.W.
Ottawa : National Research Council of Canada, 1981.
[10] p. : figures, tables ; 21 cm
(DBR paper, no. 1005)

(NRCC - Canada. National Research Council, no. 19752)
Cover title.
Paper presented at the Sixth International Conference on Port and Ocean Engineering Under Arctic Conditions, Quebec, Canada, July 27-31, 1981, v. 1, p. 225-234.
References.
ACU, NFSMO

Ice property measurements were carried out during ice breaking trials of the "CANMAR KIGORIAK" during the winter of 1979-80, primarily in landfast ice in the Southern Beaufort Sea in the vicinity of McKinley Bay. They included crystallographic analysis to establish ice type and structure, temperature and salinity profiles, and uniaxial compression and "Brazil" strength tests. The work was performed on board ship at the time of the trials. The ice under study included samples of first-year ice covers and multi-year pressure ridges. Sampling and measurement techniques are described. The strength results are discussed in terms of salinity, loading rate, grain structure, sample orientation and position in the ice cover. Strength results were found to agree generally with values in the literature. (Au)

G-92118
Ice edge break-up in Lancaster Sound / MARTEC Limited. Lowings, M. Banke, E. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1982.
1 v. (various pagings) : figures ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD24)
References.
ACU, NFSMO

This report will investigate some of the factors that currently determine the position of the landfast ice edge in Lancaster Sound, and more importantly, other factors likely to influence its position in the future. These include ice dam formation, export of multi-year ice, ship traffic, and climatic change over the next several decades. The significance of possible ship-related displacement compared to natural advance and retreat, and break-up, of the ice edge will be addressed. Scenarios that detail the season-to-season, ship-related disruption of the local ice conditions will be presented. The more probable effects of ships crossing the ice edge will also be mentioned. A summary of relevant ice, climatic, and oceanographic information will precede these assessments of future interactions. The very high natural variability of ice and climatic conditions in the Arctic Archipelago will be emphasized in this regard. These regional characteristics will likely determine the significance of increasing ship traffic on the future location and integrity of the landfast ice edge in Lancaster Sound. ... (Au)

G-92150
Study of ice conditions along a year-round shipping route from the Bering Strait to the Canadian Beaufort Sea / Dickins (D.F.) Engineering Consulting. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1979.
1 v. (various pagings) : figures, tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD30)
Appendices.
References.
ACU, NFSMO

Ice conditions along a 1,700 kilometer year round marine shipping route, from the Bering Strait to the Canadian Beaufort Sea, are evaluated using over 400 satellite images, all available ice charts, and published data. 1975 is discussed as an extreme year, and compared with probability statistics. The study concludes that for at least nine years out of ten, multi-year ice will not be a significant factor in hindering vessel transit, but in an extreme year, may entail delays in the order of 40 to 70 hours on any given shipment. ... Ice pressure is the least understood ice condition, and could cause additional delays over the route section between Point Barrow and Barter Island. ... Partially offsetting the negative aspect of pressure, is the encouraging presence of distinct leads along the route throughout the winter period. If utilized efficiently, these leads offer opportunities for much greater block speeds than could otherwise be achieved through level first-year ice. Recommendations are made for further field and analytical studies required for a definitive route assessment. (Au)

G-92169
Dome Petroleum Limited study of ice conditions in navigational channels Viscount Melville Sound to southern Beaufort Sea / Albery, Pullerits, Dickson and Associates. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1978.
1 v. (various pagings) : figures, tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD31)
Appendices
References
ACU, NFSMO

The following summaries of sea ice and surface weather were prepared as the first phase of a study to evaluate the economic feasibility of shipping oil from Tuktoyaktuk in the Beaufort Sea to Bridport Inlet on Melville Island. The principal objective of the ice analysis was to generate parameters which could be used in assessing ship transit times and establishing vessel design criteria. A full explanation is provided of how this emphasis on shipping was applied in interpreting historical ice data. ... Ice conditions in the Beaufort Sea have been covered by a number of researchers .... These reports provide detailed results of LANDSAT and NOAA imagery interpretation, laser surface profiles, historical summaries, and low level aerial photo coverage. Major conclusions and summaries are presented here .... (Au)

G-92940
Estimating surface wind direction over drifting open pack ice / Feldman, U. Howarth, P.J. Davies, J.A.
(Journal of geophysical research, v. 86, no. C 9, Sept. 20, 1981, p.8117-8120, figures, tables)
References.
ACU, NFSMO

Surface wind direction data, vital for the study of drifting pack ice, are not routinely available for polar oceans. These data may be estimated from the difference between the direction of motion of detached ice floes, as determined from sequential satellite images, and the angle of sea ice deflection, which varies with the geostrophic wind speed. (Au)

G-99481
Long-period oscillations of the ice recorded by continuous gravimeter measurements from drift station T-3 / LeSchack, L.A.
(Arctic, v. 17, no. 4, Dec. 1964, p. 272-279, ill., figures, table)
ACU

G-105058
Remote estimation of the properties of sea ice : surface truth measurements, Beaufort Sea, March 1979 / Snellen, J.B. Rossiter, J.R.
St. John's : Centre for Cold Ocean Resources Engineering, 1981.
viii, 112 p. : figures, tables ; 28 cm.
(C-CORE publication, no. 81- 17)
(Technical report - Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering)
ISBN 0-88901-068-4
References.
ACU, NFSMO

... As a result of a contract arising from an unsolicited proposal to the Canadian Government (Department of Supply and Services), C-CORE mounted a joint government-industry-university program. Field measurements were made in the Beaufort Sea during March 1979 (Rossiter and Butt, 1979) and over Lake Melville, Labrador in April 1979 (Butt et al., 1979). The sites were chosen to coincide in time and place with other investigations, including the SURSAT Project, which involved a number of sea ice studies including a number of remote sensing overflights. This report describes the ice surface truth measurements made in the Beaufort Sea during this project. ... (Au)

G-107239
Beaufort Sea ice movement from RAMS buoy data analysis 1977-1978 / Gulf Canada Resources Inc. McGonigal, D.
[Calgary, Alta.] : Gulf Canada Resources Inc., 1979.
11 microfiches : tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWIO1V1, RWIO1V2, RWIO1V3)
Mostly tables.
ACU, NFSMO

The purpose of this report is to present the results of the analysis of RAMS buoy positional data for ice movement in the Beaufort Sea collected between November 1977 and June 1978, by Gulf and Canmar and the Government of Canada. ... In this three volume report the ice movement information derived is presented in tabular and graphical form along with relevant statistics for design and environmental protection considerations. ... A detailed description of the analysis methods and an explanation of the various computer outputs appear in the text of the 1975-77 RAMS report. (Au)

G-107247
Beaufort Sea ice stereo photo analysis, 1976-77 / Gulf Canada Resources Inc. Wright, B.D. Schwab, D.L.
[Calgary, Alta.] : Gulf Canada Resources Inc.], 1979.
1 microfiche : figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWIO2)
ACU, NFSMO

The purpose of this report is to present the results of an analysis of 1976-77 Beaufort Sea aerial photographs. This analysis supplements the 1973-76 Beaufort Sea Stereo Photo Analysis. During the winter of 1976-77 ... Esso Resources Canada Limited obtained stereo photographs in the Beaufort Sea. These photographs were profiled by R.M. Hardy and Associates to obtain ridge heights along lines drawn by Esso Resources. These Beaufort Sea photographs along with the corresponding ridge profiles were purchased by Gulf. The same analysis as outlined in the report "Beaufort Sea Ice Stereo Photo Analysis : 1973-76" was then applied. ... (Au)

G-107255
Beaufort Sea ice stereo photo analysis, 1977-78 / Gulf Canada Resources Inc.
[Calgary, Alta.] : Gulf Canada Resources Inc., [1979?].
5 microfiches : figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWIO3)
Mostly tables.
ACU, NFSMO

The purpose of this report is to present the results of an analysis of 1977-78 Beaufort Sea aerial photographs. This analysis supplements the 1973-76 and 1976-77 Beaufort Sea Stereo Photo Analyses. ... Burnett Resource Surveys Ltd. was contracted to profile lines selected from specific target areas in the Beaufort Sea ... The analysis for the ridge heights, ridge orientations, floe sizes and undeformed ice sheet sizes was identical to the procedure outlined in the report "Beaufort Sea Ice Stereo Photo Analysis: 1973-76". Since more areas were photographed in 1977-78 than in 1973-77, more sampling was done and new data blocks were created. ... All results are presented ... in the same format as that of the previous reports. (Au)

G-107263
Multi-year ice thickness distribution in the Beaufort Sea determined by airborne imoulse radar / Memorial University of Newfoundland. Centre for Cold Ocean Resources Enginesring. Canadian Marine Drilling Limited [Sponsor]. Esso Resources Canada Limited [Sponsor].
[St. John's, Nfld. : Centre for Cold Oceans Resources Engineering], 1980.
1 microfiche : figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWIO4)
(C-CORE publication, no. 80- 11)
(Contract report - Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering)
Appendices.
References.
This material is proprietary to the sponsoring organizations until January 1982, after which time the report will be available as a C-Core publication no. 80-7, prepared September, 1980.
ACU, NFSMO

The possibility of using airborne impulse radar to characterize multi-year ice in the Beaufort Sea was investigated in March 1979. This was the first recorded use of a sea ice sounder from a fixed-wing aircraft. A total of 440 line-km of data were examined, along with simultaneous aerial photography. Initially aided by high and low level photography, analysis of impulse radar data can now be used to differentiate between first-year and multi-year ice. Multi-year ice covered 55% of the line studied, and a total of 11% of the multi-year ice (27 km) showed impulse radar bottom echoes. The maximum thickness penetrated was 13.5 m, while a minimum thickness was imposed by the waveform of the transmitted pulse at 1.3 m. Bottom echoes were sporadic, and deformed ice appears more difficult to penetrate, but further studies will have to be done before these limitations are fully understood. An ice thickness distribution based on the multi-year ice penetrated had a peak at 3.4 m and a mean thickness of 3.7 m. The distribution curve fits a negative exponential for ice thicknesses greater than 4.0 in with an exponential coefficient of -0.62, significantly different from the value of -0.37 reported from previous analysis of submarine sonar keel drafts in the Beaufort Sea. (Au)

G-107271
Final report on engineering properties of ice in the Beaufort Sea / F.G. Bercha and Associates Limited. Dome Petroleum Limited [Sponsor].
Calgary, Alta. : F.G. Bercha and Associates

Ltd., 1976.
4 microfiches : figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWI05)
Appendices.
References.
ACU, NFSMO

The work reviews, documents, compiles, and presents qualitative and quantitative recommendations on properties of ice in the South Beaufort Sea relevant to ice structure interaction modelling. These properties include geometry and kinematics of sheet, ridge, and ice island forms and relevant mechanical strengths. Geometric and kinematic properties are cast into probabilistic form to optimize use of the relative sparsity of relevant empirical data. Strength and other material properties are presented in mean and maximum ranges to permit more realistic use by the designer. General and historical background on sea ice properties are presented to facilitate deeper understanding and continuation of the work. A description of mathematical simulators for the relevant main classes of offshore structures, providing a matrix for the engineering properties, is given. ... (Au)

G-107280
Beaufort Sea ice stereo photo analysis, 1973-76 / Gulf Canada Resources Inc. ; Wright, B.D. ; Schwab, D.L.
[Calgary, Alta. : Gulf Canada Resources Inc.], 1979.
4 microfiches : figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWI06)
ACU, NFSMO

The purpose of this report is to present the results of an analysis of 1973-1976 Beaufort Sea aerial photographs. This analysis quantifies the distribution of various two and three dimensional ice cover parameters during the fall, winter and spring periods and is of importance to the design of offshore exploration and production systems for the Beaufort Sea. ... The study itself was subdivided into two phases, the first involving a stereoscopic analysis of ridge heights along "representative random" lines through the fixed Beaufort Sea areas mentioned. ... These "raw profiles" were in turn separated into first and multi-year ridge populations, transformed into frequency distributions as a function of space and time, and then fit with probability distribution functions. The second phase of this study was a two dimensional analysis involving a planar determination of the following parameters within each of the fixed areas: ice concentration, ice type, floe size and undeformed ice sheet areas, and various two dimensional pressure ridge measures. ... The statistics on these features were again separated into first and multi-year ice categories where possible and the two dimensional data also presented as a function of space and time. (Au)

G-108251
Statistics on Beaufort Sea summer ice cover for ice/structure collision assessment / Imperial Oil Limited ; Spedding, L.G.
Calgary, Alta. : Imperial Oil Ltd., 1978.
2 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWI07)
References.
ACU, NFSMO

... It is the aim of this report to review and update summer ice statistics pertinent to . Imperial's operating requirements and report them in one reference. These statistics have been obtained by reanalyzing the Historical Ice Charts. This report is aimed at improving our data base in the following areas: 1) Update statistics on the dates ice has broken up and cleared from specific water depths, ii)Derive end of season dates, iii) Derive open water season lengths for various water depths, iv) Derive frequency of all ice return probabilities for various water depths, v) Derive frequency of multi-year ice return for various water depths, vi) Derive frequency of various returns by concentrations and combinations of types, vii) Generate collision probabilities for structures at various water depths. ... This information on open water season length, and ice incursions of course, is pertinent to all summer operations, whether it is island building or drillship operations. (Au)

G-108260
Landfast and shear zone ice conditions in the southern Beaufort Sea - winter 1977/78 / Esso Resources Canada Limited ; Spedding, L.G.
Calgary, Alta. : Esso Resources Canada Ltd., 1979.
5 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWI09)
Appendices.
References.
ACU, NFSMO

Landfast and shear ice conditions observed in the Mackenzie Delta region during the 1977/78 winter are documented in this report. Conditions are documented from initial ice formation in October 1977 to the commencement of break-up in May 1978. ... In view of the possible development of projects at the deeper water depths of the shear zone, ice motion rates and pressure ridge distributions throughout the winter are required. To fulfill these goals, the winter ice monitoring program has been extended to document conditions during the 1977/78 season with the program emphasis changing to document shear zone conditions. ... the Atmospheric Environment Services ice patrol aircraft was contracted to make four surveillance flights. Photographs, infra-red line scanner and laser profile information of shear zone ice conditions were obtained. On one flight, side-Looking Airborne Radar imagery (SLAR) was obtained. ... SLAR imagery obtained in the spring of 1975 gave statistical information on the amount of multi-year ice trapped in coastal waters that winter. The following developments and evaluation of potential remote sensing systems for ice reconnaissance is also part of this work. The objective of the program was to evaluate the potential of various radar systems for characterizing the surface roughness of ice, especially radar altimeters for measuring ridge heights. ... An aircraft equipped with laser profilometers, cameras, radiometer, scatterometer and radar altimeter flew a mission north of Richards Island. Industry's contribution to the program was to mark representative ridges with targets so they could be overflown, and provide ground truth observations on blocksizes, snow depths, salinities and ridge heights. ... This report summarizes the results from all these programs. Shear and landfast ice zone conditions are documented. (Au)

G-108278
Ice conditions around Issark E-27, 1977-78 / Esso Resources Canada Limited ; Vittoratos, E.S.
Calgary, Alta. : Esso Resources Canada Ltd., 1980.
2 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWI08)
Appendices.
References.
ACU, NFSMO

The ice conditions around the artificial island Issark E-27 are described for the 1977-78 winter. The exposed geographical location of the island resulted in an extensive, elliptical rubble field (1400 by 700 m) which stabilized by the end of December. Properties of distinct features such as rubble field, rubble field-ice sheet interface ("active zone"), and cracks were studied. Using surveying techniques, it was concluded that the rubble field behaved as a solid annulus attached to the island during the period Feb. 20 - May 12 when the surrounding ice sheet movement was limited to less than 2 m. Profiles through the active zone revealed both crushing and bending failure mechanisms. The existence of a preferred crystallographic orientation of the sea ice was confirmed by the Mackenzie Delta; it was also inferred that the presence of offsnore structures such as artificial islands, influences the ice crystallography near the structure. The mathematical formalism for relating environmental forces to the ice force felt by an artificial island is outlined and it is applied to calculations relating to the safety of Isserk. (Au)

G-108286
Summer ice floe size and distribution in the southern Beaufort Sea / Esso Resources Canada Limited. Spedding, L.G. McLellan, P. Soares, C.
Calgary, Alta. : Esso Resources Canada Ltd., 1978.
6 microfiches : figures, tables ; 11 x 15 cm
(Beaufort E.I.S. reference work, no. RWI10)
References.
ACU, NFSMO

This report presents the summer flow size distribution determined from analysis of aerial photographs taken over the Southern Beaufort Sea. Aerial photographs from 56 flight lines taken along the pack ice edge have been examined. The photographs were taken by Imperial and the Atmospheric Environment Service Ice Patrol Aircraft in 1973, 1974 and 1975. Information from earlier flights conducted by Imperial in 1971 is also included for comparative purposes. A review of the literature indicates very little work on floe size distribution has been carried out in the past. Pertinent portions of other work is reviewed and discussed. An attempt has been made to fit the observed data to a statistical distribution model. (Au)

G-108294
Selected environmental characteristics of Beaufort Sea ice / Dome Petroleum Limited. Danielewicz, B.W. Pilkington, G.R.
[S.l. : s.n.], 1980.
2 microfiches : figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWI11)
References.
ACU, NFSMO

This report represents a review of some of the major studies of the ice environment in the south-central Beaufort Sea. Its specific purpose is to summarize the data base for the planning of hydrocarbon production within the Arctic environment. A fourfold approach has been adopted to meet this objective: a) summarizing available reports to extract highlights pertinent to the specific requirements of this report, b) presenting new forms of analysis of published data which clarify the results and suggest new interpretations, c) analyzing new data gathered during in-house studies which have hitherto not been presented in formal reports, d) combining various data types from several sources into new models of ice behaviour. ... The report has been produced in several chapters which have as far as possible been presented as independent units. Each has been designed to grow independently as additional information on the Beaufort environment becomes available and is incorporated into a clear and well founded concept of the Arctic environment. (Au)

G-108308
Use of thermal discharge for ice management for the Arctic Production Loading Basin / Acres-Santa Fe Incorporated. Dome Petroleum Limited [Sponsor].
Calgary, Alta. : Acres-Santa Fe Inc., 1982.
1 microfiche : figures, tables ; 11 x 15 cm
(Beaufort E.I.S. reference work, no. RWI12)
References
ACU

This study constitutes a brief review of the possibility of using a thermal discharge to control the accumulation of ice inside the proposed Arctic Production and Loading Basin. Without some measures to control ice growth it is calculated that the undisturbed ice cover in the APLB would typically reach a thickness of 1.9 m. Thickness in the ship track would be much greater - potentially 6.3 for ship transits every two days. The 24,000 square m area of the ship berth itself has been designated as an ice management area, within which ice thickness would be controlled to 0.5 m or less. Four different cases representing alternative management approaches have been considered and heat requirements have been calculated. Using a mathematical model of unsteady heat transfer a parametric study has been made of the effect of the average frequency of tankers arrivals on heat requirements. ... It is concluded that management of ice thickness in the berth can be expected to prove feasible with heating rates of the magnitude cited above. ... There has been no attempt to optimize pumping power against design heating capacity. ... (Au)

G-108316
Environmental impact statement : volume 3 : tanker routes and ice regime / Dickins (D.F.) Engineering Consulting. Dome Petroleum Limited [Sponsor].
Vancouvar, B.C. : D.F. Dickins Engineering Consulting, 1981.
1 microfiche : figures, tables ; 11 x 15 cm
(Beaufort E.I.S. reference work, no. RWI13)
Appendices
References
Cover title: Beaufort Sea production environmental impact assessment, ice conditions along arctic tanker routes
ACU, NFSMO

This summary document describes the important characteristics of the different sea ice regimas along eastern and western Arctic tanker routes originating in the Canadian Beaufort Sea. The text contains information drawn from a wide variety of sources, but relies heavily on descriptions of ice conditions along actual "best" shipping routes selected through studies since 1977, rather than overall regional summaries, more applicable to pollution assessment and exploration. Sea ice statistical data along with other supporting information is provided on a regional basis in an Appendix: Physical Environment. (Au)

G-108324
Beaufort Sea ice movement from RAMS buoy data analysis 1975-1977 / Gulf Oil Canada Limited. McGonigal, D. Wright, B.D.
[S.l.] : Gulf Canada Ltd., [1979?]
8 microfiches : figures, tables ; 11 x 15 cm
(Beaufort E.I.S. reference work, no. RWI14V1, RWI14V2)
ACU, NFSMO

The purpose of this report is to present the results of an analysis of all the available RAMS positional data for ice movement in the

Southern Beaufort Sea. The resultant information is limited to average motions over daily periods by inherent inaccuracies in the RAMS system but is useful as preliminary design data for exploration and production systems as well as in environmental protection considerations. In this report, ice movement time series and statistics derived from 10 RAMS buoy data sets are presented in both graphical and tabular form. The 10 buoys used for this analysis were deployed at various times throughout the year over the 1975-1977 period and provide a reasonable amount of information on the spatial and temporal distribution of ice movement in the Southern Beaufort Sea. (Au)

G-108332
Ice design statistics for the Canadian Beaufort Sea / Canadian Marine Engineering Ltd. Marcellus, R W. Morrison, T B. Dome Petroleum Limited [Sponsor]. Gulf Canada Resources Inc. [Sponsor]. Esso Resources Canada Limited [Sponsor]
[S.l.] : Canadian Marine Engineering Ltd., 1982
2 microfiches : figures, tables ; 11 x 15 cm
(Beaufort E.I.S. reference work, no. RWI15)
Appendix
References
ACU, NFSMO

This report is a companion report to two further CMEL reports dealing with an ice/structure interaction computer model and probabilistic ice loads on offshore structures in the Beaufort Sea. ... The intent of these reports is to collectively provide a preliminary probabilistic assessment of the global ice loads which may be applied to offshore production structures located on the Beaufort Sea Continental Shelf. These reports were initiated to demonstrate the feasibility of constructing structures to resist the ice loads in this area; they do not contain sufficient information for detailed design. ... The ice statistics contained in this report are representative of the Canadian Beaufort Sea and have been used in the computer interaction model to predict return period global ice loads on offshore production structures. ... Offshore structures ... will be subjected to interactions with large ice features. A number of interaction scenarios are possible. These involve impacts by multi-year floes, multi-year hummock fields and even ice islands although the probability of this is low. ... This report concentrates on the larger ice features such as multi-year floes which may interact with fixed offshore structures in the region. A summary of the report is presented in Chapter 2. (Au)

G-108340
The flexural failure of hummock fields and large floes at the summer ice edge in the Beaufort Sea / Wadhams, P. Dome Petroleum Limited [Sponsor]
[S.l. : s.n.], 1981.
2 microfiches : figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWI16)
References.
ACU, NFSMO

... A theory for the flexural response of a uniform floating ice raft to wave action has been developed at SPRI and tested against experimental data from the Labrador Sea (first year floes), Greenland Sea (first and multi year floes, ice island), Bering Sea (thin first year ice) and Antarctic (tabular icebergs). The theory enables us to predict the maximum raft diameter as a function of wave height and period. Furthermore, theory and experimental data on the decay rate of waves in an icefield enable us to calculate how near to the ice edge the EIF must come before suffering fracture. In this report we use as wave data the hindcast wave statistics which we use to compute the effect of Beaufort Sea waves on EIFs of various dimensions. The likelihood of flexural failure is estimated and the maximum sizes of the fragments computed. ... (Au)

G-108359
Analysis of interaction probabilities between large ice features and offshore structures in the Canadian Beaufort Sea / Dome Petroleum Limited. DePaoli, S. Canada Marine Engineering Ltd. Morrison, T B. Marcellus, R.W.
[S.l. : s.n.], 1982
2 microfiches : figures, tables ; 11 x 15 cm
(Beaufort E.I.S. reference work, no. RWI17)
References.
ACU, NFSMO

This study was undertaken to estimate the frequency of large ice feature/offshore production structure interactions in the Southern Beaufort Sea, for inclusion in the ice design criteria for offshore structures. ... The large ice features which are considered in this report are ice islands and multi-year hummock fields. These ice features are normally characterized by a large surface area and often by a deep draft (or keel depth). This report addresses the following topics: - the formation and rates of production for these ice features - the number of ice islands and multi-year hummock fields which may enter the area of the drillsites in any given year, and - the probability that these ice features will interact with offshore structures in the Southern Beaufort Sea for various locations in the area of concern. Chapter 2 is a summary of this study, and presents recommendations for future work arising from this report. ... Chapter 3 presents detailed discussions on: - the location of where ice islands and multi-year hummock fields are formed and their current populations, - the Beaufort Gyre (the main circulation pattern in the Arctic Ocean), - observed ice movements in the Southern Beaufort Sea, and - the number of large ice features which may enter the area of the drillsites in the Southern Beaufort Sea. In Chapter 4, the various methods upon which interaction probabilities can be based are evaluated. ... (Au)

G-108367
Final report on the field studies and aerial mapping along the north-west edge of the Canadian Archipelago / Hudson, R.D. Metge, M. Pilkington, G.R. McGonigal, D. Schwab, D.
[S.l. : s.n.], 1980.
3 microfiches : ill., figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWI18)
Appendices.
References.
ACU, NFSMO

A three week field study to investigate ice dynamics and ice features along the N.W. edge of the Canadian Arctic Archipelago is described. Fourteen ground sites were visited covering a variety of ice phenomena. ... More than 2300 line km of aerial photography, yielding over 4000 square km of data, was taken. Floe sizes and ice types from more than 24,000 floes have been analyzed and are presented, giving the best statistical base so far of the Arctic's most dynamic ice zone. ... Numerous ice failure mechanisms were documented, including ride-up and local crushing within close proximity of each other. A 5 m thick MY sheet was observed to ride up to a height of 23 m on a 26 degree slope. ... Old landfast ice was noted from central Prince Patrick Island (77 degrees N) extending northwards in increasing thickness to the ice shelves of Axel Heiberg and Ellesmere Islands. This ice had massive ridges running parallel to the edge; these have been designated as multiyear hummock fields (MYHF). Their origin, formation and movements are described. Grounded shear ridges were recorded to water depths of 50 m. Large ice blocks and ice island fragments are documented and described, as well as two cases where ice rubble, behaving like a cohesionless Mohr-Coulomb material, has been extruded in significant amounts. ... Of particular interest to the group were the driving and crushing stresses in pack ice. Six sites were investigated: the detailed descriptions of their exact locations, the measurements taken and the assumptions made, are described in Appendix I: Site reports. (Au)

G-108375
An initial probabilistic assessment of ice loading on Beaufort Sea structures / Canada Marine Engineering Ltd.; Marcellus, R.W.; Roth, D.R.; Dome Petroleum Limited [Sponsor]; Esso Resources Canada Limited [Sponsor]; Gulf Canada Resources Inc. [Sponsor]
[S.l.] : Canada Marine Engineering Ltd, 1982.
4 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWI19)
Appendices.
References.
ACU, NFSMO

The objective ... was to provide a preliminary estimate of the anticipated ice loads on offshore production structures located on the Continental Shelf of the Canadian Beaufort Sea. Estimates of ice loading for 12 basic bermed structures in 60 m water depth and 8 bermed structures in 20 m water depth are provided at the end of this chapter. These estimated ice loads result from a comprehensive review of the factors involved when calculating probabilistic or return period ice loading. The estimated ice loads are felt to be accurate for the assumptions used in the analysis to within 50 percent (assuming that the crushing pressure curve and the pack ice forces agreed to for this work by the partners are accurate). This estimate of the error is based on estimates of the inherent errors in the computer model solution and in the ice design statistics used in the analysis. A breakdown of this estimate is provided ... The load graphs ... along with the platform volume graphs presented ... allow the user to optimize the geometric design of platforms at particular locations on the Continental shelf of the Canadian Beaufort Sea. In general, the estimates provided in this report are conservative, since the local ice thickness which produces the maximum load has been chosen without consideration for the probability of having that chosen local ice thickness. If this probability were included this would result in lower ice loads in most cases. ... (Au)

G-115983
Analysis and characteristics of cores from a massive ice body in Mackenzie Delta, N.W.T., Canada / Fujino, K.; Horiguchi, K.; Shinbori, K.; Kato, K.
(Low temperature science. Series A. Physical sciences, v. 41, 1982, p. 143-150, ill., figures, tables)
References.
English summary.
Text in Japanese.
ACU

Using a newly designed electro-mechanical drill, core samples were obtained successfully throughout a massive ice body near Tuktoyaktuk, Mackenzie Delta, N.W.T., Canada, in March 1982. Obtained cores, about 23 m in total length, were investigated systematically concerning crystallography together with analyses of chemical components such as oxygen isotopes, pH and salinity. Many band-like structures which were divided by soil layers were observed in the entire length of the cores. The inclination and the thickness of each stratum were not uniform. Crystals in the strata were clearly different between two adjacent strata in size, shape and c-axes orientation and also in distribution of air bubbles. Obtained results strongly suggest that the massive ice body was formed by congelation of water, being supported by the presence of band-like structure, dispersed soils and elongated air bubbles. ... (Au)

G-120464
Ice breakup and jamming observations along the Mackenzie River / Kamphuis, J.W.; Moir, J.R.
(Canadian journal of civil engineering, v. 10, no. 1, 1983, p. 78-91, figures, table)
References.
ACU

The breakup of ice along the Mackenzie River between Fort Simpson and Fort Good Hope was studied in 1979, 1980, 1981, and 1982. This paper describes the 1980 and 1981 observations. An aircraft dedicated to this task was used to make over 40 observation flights during those two breakup seasons in which more than 20 major ice jams were observed during their formation, stationary position, and breakup. Although the paper is based on experience gained during only 4 years, it was found that all observed jams displayed the same major characteristics; hence it appears that general descriptions of ice melting, breakup, and jamming for the section of the Mackenzie River under investigation are possible. ... (Au)

G-122327
Proceedings of a Workshop on Sea Ice Ridging and Pile-up, 22-24 October, 1980, Calgary, Alberta / Workshop on Sea Ice Ridging and Pile-up, Calgary, Alberta, 22-24 October, 1980.; Canada. National Research Council. Associate Committee on Geotechnical Research. Snow and Ice Subcommittee [Sponsor].
Ottawa : National Research Council, 1982.
vi, 308 p. : ill., figures, tables ; 28 cm.
(Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 134)
References.
ACU, NFSMO

This publication presents the eighteen papers given at the Workshop on Sea Ice Ridging and Pile-up at Calgary, 1980. It is one of the first compilations in Canada of information on the initiation, morphology and characteristics of ice ridges and rubble fields, and problems relating to their interaction with structures. (ASTIS)

G-122335
Features of first and multi-year ridges / Wright, B.D.; McGonigal, D.
(Proceedings of a Workshop on Sea Ice Ridging and Pile-up, 22-24 October, 1980, Calgary, Alberta. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 134, p. 1-8, figures)
ACU, NFSMO

Ridges in the Arctic Offshore regions have been the subject of intensive study during the past decade or so because of the hazards they pose to offshore structures and marine traffic, and because of their potential to scour the seabed. The presentation deals with the formation, geometry, structure, physical properties and frequency of occurrence of both first and multi-year ridges. ... (Au)

G-122343
Ridge statistics of the Beaufort Sea shear zone / Hudson, R.D.
(Proceedings of a Workshop on Sea Ice Ridging and Pile-up, 22-24 October, 1980, Calgary, Alberta. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 134, p. 9-20, figures)
References.
ACU, NFSMO

Work by a number of researchers has shown that the Beaufort Sea ice region lying between the permanent polar pack to the north and the landfast ice to the south, which is generally described as the shear zone or seasonal pack, is among the most densely ridged areas in the Arctic Basin. To date, statistical analysis of either a time or space related series of ice thicknesses has not been possible on a satisfactory scale due to the waterdepth ... which has limited submarine profiling, while airborne laser and stereo photography still suffer from the limitation of keel-to-sail ratio ambiguities. A seabed mounted, upward-looking sonar device is described, which was deployed in 30 m of water for the winter season 1978/79. Keel drafts were recorded every 6 seconds, providing the first time section of this ice regime over 248 days. Ice thicknesses, growth rates, keel distributions and keel separations were derived, based on the detection of 1573 keels. The keel depth distribution is compared with other researchers' work on sail distributions for the same area, and a sail-to-keel ratio of 1:4.0 derived. (Au)

G-122378
Compressive strength of multi-year ridge ice / Timco, G.W. Frederking, R.M.W.
(Proceedings of a Workshop on Sea Ice Ridging and Pile-up, 22-24 October, 1980, Calgary, Alberta. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 134, p. 52-61, figure, table)
References.
ACU, NFSMO

During the 1979-80 winter trials of the Canmar Kigoriak, the authors performed a series of ice property measurements which to a large extent dealt with tests of the uniaxial compressive strength of the ice. The ice which was tested included a number of samples of multi-year ice which were collected by Canmar during a probe into the polar pack ice with the Kigoriak in October 1979. The results of these tests are presented here. In general, it was found that the compressive strength of this ice was lower than the strength of the first year ice encountered during the trials. (Au)

G-122386
Rule of thumb ridge height distributions / Spedding, L.G.
(Proceedings of a Workshop on Sea Ice Ridging and Pile-up, 22-24 October, 1980, Calgary, Alberta. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 134, p. 62-81, figures, tables)
References.
ACU, NFSMO

Since the 1972/73 winter, Esso Resources Canada Ltd. has conducted yearly programs to quantify near shore winter ice conditions in the Mackenzie Delta region of the Southern Beaufort Sea. Temporal changes in ridge distributions throughout a season and yearly have been documented for the landfast and shear zones. Ridge height data, has been classified into 1.5 metre categories. The analysis shows that, while large changes in regional ridge distributions occur for specific ice conditions, less variation is apparent in the height distribution. Rule of thumb ridge height distributions have been developed to cover ten specific types of ice conditions that can be expected in the Beaufort Sea. It is expected that these rule of thumb height approximations are adequate for the tactical support of operations in the Beaufort Sea. (Au)

G-122408
Extreme ice pile-ups and multi-year hummock fields / Metge, M. Hoare, R.D. Pilkington, G.R. McGonigal, D. Schwab, D. Wright, B.
(Proceedings of a Workshop on Sea Ice Ridging and Pile-up, 22-24 October, 1980, Calgary, Alberta. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 134, p. 96-106, figures)
ACU, NFSMO

Multi-year hummock fields are formed by very large grounded ice pile-ups which, with time, ablate at their surface and float away. This process has significant implications in the design of deep water platforms for the Beaufort Sea. (Au)

G-122416
Ridge keel observations / Pilkington, G.R. O'Rourke, J.C. Steen, J.W. Banke, E.G.
(Proceedings of a Workshop on Sea Ice Ridging and Pile-up, 22-24 October, 1980, Calgary, Alberta. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 134, p. 108-119, ill., figures)
References.
ACU, NFSMO

In May 1978 five first-year ridges were investigated both on the ice surface and from below by divers; the observations of one ridge are discussed here. The ridge keel profile depths as indicated by drilling from the surface were generally less than indicated by both a side looking sonar system and the divers. However, a reasonable agreement was found between the sonar and divers. The divers noted large amounts of slush ice, solid ice blocks, decomposed blocks that had a "swiss cheese" appearance all within the same keel. Observations were made on the inter-block bonds. (Au)

G-122459
Ice pile-up around offshore structures in the Beaufort Sea / Allyn, N.
(Proceedings of a Workshop on Sea Ice Ridging and Pile-up, 22-24 October, 1980, Calgary, Alberta. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 134, p. 181-203, figures, tables)
References.
ACU, NFSMO

A special purpose computer program has been developed to model ice rubble field buildup around an offshore structure. The program has been designed to take account of ice movement, properties of the incoming ice, rubble field properties, and the mechanism by which the rubble field is built up and swept away as the moving ice changes direction. The model is particularly useful for generating statistics on the extent of ice rubble, from which tanker loading facility requirements can be evaluated. This paper examines the theory and field data requirements for the program and demonstrates how the rubble field grows and changes. (Au)

G-122475

Characteristics and stability of an ice rubble field, Issungnak, February-March 1980 / Frederking, R.M.W.   Wright, B.

(Proceedings of a Workshop on Sea Ice Ridging and Pile-up, 22-24 October, 1980, Calgary, Alberta. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 134, p. 230-247, figures, table)

References.

ACU, NFSMO

The physical characteristics and properties of part of the ice rubble field around the Issungnak location in the Beaufort Sea were investigated at the end of February 1980. A detailed profile, including ice elevations, thicknesses, porosities and snow depths, was made along a radial line extending almost 150 m across the rubble pile. Cores were taken at a number of locations in the formation to characterize physical properties such as temperature and salinity. A number of strength measurements were also made. The sliding resistance of the rubble field at this location was estimated using a simple buoyancy model. (Au)

G-122483

Damage to an underwater pipeline by ice ridges / Noble, P.G.   Comfort, G.

(Proceedings of a Workshop on Sea Ice Ridging and Pile-up, 22-24 October, 1980, Calgary, Alberta. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 134, p. 248-284, figures, table)

References.

ACU, NFSMO

A 24-inch diameter water intake pipeline approximately 5 miles long was installed in Great Slave Lake in 1977/78 to meet the increased water requirements of the Town of Hay River. The line, with its associated intake structure and pumphouse, was put into service in January 1979. By late spring it became apparent that the line had failed and that water was being drawn into the system from nearshore. After ice breakup, divers examined the line and found that the pipe was broken at a point 7100 ft from shore. This paper describes work which was carried out to ascertain the possible mechanisms causing failure of the pipe, and to suggest improvements in the intake system which might minimize future damage from ice ridges. ... (Au)

G-122491

Interactions between first-year grounded ridge keels and trenched pipelines / Marcellus, R.W.

(Proceedings of a Workshop on Sea Ice Ridging and Pile-up, 22-24 October, 1980, Calgary, Alberta. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 134, p. 285-295, figures, table)

References.

ACU, NFSMO

As the oil and gas industry investigates various production scenarios for offshore discoveries in ice infested waters, specific design questions must be considered. This paper addresses the problem of contact between first-year grounded ridge keels and trenched pipelines and comments on the possible force levels which could be exerted on a pipeline in an open trench. (Au)

G-122670

Some implications of ice ridges and rubble fields on the design of arctic offshore structures / Croasdale, K.R.

(Proceedings of a Workshop on Sea Ice Ridging and Pile-up, 22-24 October, 1980, Calgary, Alberta. Technical memorandum - Canada. National Research Council. Associate Committee on Geotechnical Research, no. 134, p. 157-180, figures, tables)

References.

ACU, NFSMO

This paper reviews how ice ridges and ice rubble fields can affect ice forces on offshore structures. The mechanism of ridge building as a limiting driving force is also reviewed. For narrow structures, it is suggested that thick multi-year ridges will govern the maximum ice forces. For wide structures, the presence of a rubble field can have a major influence on ice/structure interaction especially if it becomes grounded. For large structures subject to collision by extremely thick ice features (such as ice islands), ridge building behind the large feature may limit the maximum forces on the structure. (Au)

G-123102

Flexural strength and fracture toughness of sea ice / Timco, G.W.   Frederking, R.M.W.

(Cold regions science and technology, v. 8, no. 1, Aug. 1983, p. 35-41, figures)

References.

ACU, NFSMO

A series of mid-winter experiments were carried out on the ice in the rubble field around Tarsiut Island in the Beaufort Sea. The tests included grain structure determinations, salinity and density of the ice, small beam flexural strength and fracture toughness. Typical values for flexural strength and fracture toughness were 0.6-1.0 MPa and 100-140 kPa m1/2 respectively. Both properties were dependent on brine volume and depth in the ice sheet. In comparing these results with identical tests on fine-grained freshwater ice it was found that for comparable loading conditions, the strength of the sea ice was significantly lower than the strength of the freshwater ice, whereas the fracture toughness of the sea ice was higher than the fracture roughness of the freshwater ice. (Au)

G-123285

On estimating the surface wind speed over drifting pack ice from surface weather charts / Khandekar, M.L.   Neralla, V.R.

(Boundary-layer meteorology, v. 23, no. 2, 1982, p. 247-249)

References.

ACU, NFSMO

The authors offer their own investigation results on the estimating of surface wind speed over drifting pack ice from surface weather charts, and comment on the published findings of (Feldman et al., 1979) which appeared in a resent publication of this journal. (ASTIS)

G-127345

The design ice island for impact against an offshore structure / Dunwoody, A.B.

(Fifteenth Annual Offshore Technology Conference 1983, proceedings. - Dallas, Tex. : Offshore Technology Conference, 1983, v. 2, p. 325-330, figures)

(OTC paper, 4550)

References.

NFSMO

A method is presented by which an ice island may be selected for preliminary design of an offshore structure. The method involves: 1.

Estimation of the risk of an ice island impact. 2. Determination of the distribution of kinetic energy amongst impacting ice islands. 3. Selection of a design kinetic energy based on the maximum risk of failure which would be acceptable. 4. Selection of a design ice island. The design ice island is chosen to be the ice island which is most likely to hit the offshore structure with the design kinetic energy. The ice island statistics are reviewed and analysed using the above selection method to define a design ice island. (Au)

G-127418
Sea bottom scouring in the Canadian Beaufort Sea / Hnatiuk, J. Wright, B.D.
(Fifteenth Annual Offshore Technology Conference 1983, proceedings. - Dallas, Tex. : Offshore Technology Conference, 1983. v. 3. p 35-40, figures)
(OTC paper, 4584)
References.
NFSMO

Echo sounding, side scan sonar and seismic profiling records have shown that the continental shelf of the Canadian Beaufort Sea has been subjected to extensive scouring by ice features. The scouring phenomena is extremely important in the design and protection of offshore wells and future pipelines. Analyses of records collected by industry and government in the early 1970's and reported by Hnatiuk and Brown in 1977 have been refined with the inclusion of additional data collected by industry and government in 1975 and 1976. Here, the results of the information synthesis are presented in terms of regional maps showing relevant scouring parameters and their variation with location and water depth. A quantitative evaluation of scour return period is also presented on the basis of sedimentation assumptions. This information is compared with a recent analysis of sidescan scour mosaics collected repetitively over four areas ranging in water depths from 45 to 150 feet and with time intervals ranging from 2 to 7 years between the repetitive seafloor maps. The rate of addition of new scours determined from the repetitive mosaic approach supports the regional assessment of Beaufort Sea scour but suggests more episodic and areally frequent scour events along with more active scouring in water depths approaching 150 feet. This information is discussed in terms of the Beaufort Sea ice regime. (Au)

G-127663
Ice engineering I / Frederking, R.
(Symposium on Offshore Mechanics and Cold Ocean Engineering held in Calgary, Alberta, June 13-15, 1983, preprints. - St. John's, Nfld. : Memorial University of Newfoundland, Continuing Engineering Education Centre, 1983, 27, [20] leaves, figures)
NFSMO

This paper is a review of classification and properties of ice (physical and mechanical properties) and of sea ice dynamics in the Beaufort and Labrador seas. (NFSMO)

G-129437
Uniaxial compressive strength and deformation of Beaufort Sea ice / Frederking, R. Timco, G.W.
(The Seventh International Conference on Port and Ocean Engineering Under Arctic Conditions. - Espoo, Finland : Technical Research Centre of Finland, 1983, v. 1, p. 89-98, figures, tables)
References.
NFSMO

Strength and deformation behaviour of horizontally oriented specimens of granular and columnar-grained ice were measured in the field. Cylindrical specimens were loaded on compliant platens and prismoidal specimens on steel platens to provide a range of loading system stiffness. Loading system stiffness proved to have a significant effect on strength when the results were interpreted in terms of nominal strain rate, but in terms of stress rate it was largely eliminated. The strength of the granular ice (2.5 - 4 MPa) was substantially higher than that of columnar-grained ice (1 - 2.5 MPa). Regardless of grain structure, the specimens all failed by yielding at a strain of about .003. (Au)

G-130206
Man-made islands in the Mackenzie River : numerical modelling of ice jam development and release / Loman, G.J.A. de Jong, J.J.A. Moir, J.R. Burgers, A. Verhagen, H.J.
(The Seventh International Conference on Port and Ocean Engineering Under Arctic Conditions. - Espoo, Finland : Technical Research Centre of Finland, 1983, v. 2, p. 1003-1014, figures)
References.
NFSMO

The design of man- made islands in a river ice regime has to cope with the complex phenomena associated with the spring break-up of the river ice. ... In order to be able to design the islands sufficiently accurately, Hydronamic bv of Sliedrecht, Holland, has developed a numerical flow model, that is capable of simulating the complex phenomena of ice jam release in natural rivers with an irregular channel geometry. This model has been successfully applied in the comprehensive design study regarding six man-made islands in the Mackenzie River, conducted for Esso Resources Canada Ltd with respect to the Norman Wells Expansion Project. This paper highlights the computational procedure and results of the numerical ice jam flow model and some computational results of the flow pattern around the man-made islands. The application of these numerical flow models is currently an effective tool for predicting the hydraulic conditions during planning, design, construction and operation of riverine and coastal projects. (Au)

G-130320
Extreme ice features along the N.W. edge of the Canadian Arctic Archipelago / Hudson, R.D. Pilkington, G.R. Metge, M.
(Proceedings : Workshop on Ice Action on Shores, May 5-6, 1981, Rimouski, Quebec / Edited by J.-C. Dionne. - Ottawa : N.R.C., Associate Committee for Research on Shoreline Erosion and Sedimentation, 1981, p. 15-34, figures)
References.
NFSMO

A field program conducted in March and April 1980 along the edge of the Arctic Canadian Archipelago from Banks Island to Ellesmere Island revealed a number of extreme ice features caused by converging sea ice compacting on the shoals of the various islands in the chain. Thirteen sites were investigated to study first hand the effects of massive ride-up and pile-up at the edge of the landfast zone. It is believed from both theoretical models and literature searches that these field studies reveal some of the largest ice events recorded to date. Ice forces and failure mechanisms were studied together with the formation of gravel berms around a number of the more prominent islands. The results are applied to the design of artificial islands on the Continental Shelf of the southern Beaufort Sea. (Au)

G-130435
Impulse radar profile over T-3 / Rossiter, J.R.
Butt, K.A. Mercer, J.B.
[St. John's, Newfoundland : C-CORE, 1980.]
[10] p., ill. ; 28 cm
(C-CORE publication, no. 80-18)
References.
Draft only.
NFSMO, ACU

On March 17, 1979 an impulse radar profile was run over almost the entire length of Ice Island T-3, which was situated at the time in the Beaufort Sea ... These results appear to be the first airborne ice thickness profiling measurements made over an ice island, although Kovacs (1977) reported surface radar soundings. The measurements took only a few minutes of flying time, and therefore the technique has potential for future use in routine operational surveys (e.g. Rossiter and Gustajtis, 1978). (Au)

G-130796
A mini-computer system for ice management in support of Beaufort Sea drilling operations /
Melrose, S.K. Schuurman, K.W. Yow, C.S.
Mercer, J.B. Routledge, R. Trobak, D.
(Proceedings of the Second International Offshore Mechanics and Arctic Engineering Symposium / Edited by J.S. Chung and V.J. Lunardini. - New York : American Society of Mechanical Engineers, 1983, p. 659-665, figures)
References.
NFSMO

In 1981 a program was initiated by Dome Petroleum Ltd. and McElhanney Surveying & Engineering Ltd. to design and produce a Shipboard Ice Alert and Monitoring System .... The concept requires a mini-computer based package to graphically display types of ice, environmental forces acting upon the ice, and predictions of hazardous ice conditions which could cause disruption of drilling programs. The program is one of a related group of environmental and ice management projects undertaken by Dome to improve both the safety and cost effectiveness of the Beaufort Sea drilling program by reducing down time due to ice hazards. (Au)

G-131164
Ice management and ice monitoring in the Beaufort Sea.
[S.l. : s.n., 1983].
28 leaves : figures ; 28 cm.
Preprint of a paper presented at the Sea Ice Management Seminar, St. John's, Newfoundland, 15-18 November, 1983
NFSMO

... Ice management capabilities have been developed in pace with drill system technology and this paper will describe the problem as seen from the perspective of ice monitoring. The presentation will focus on the ice management experience of Dome Petroleum's offshore drilling subsidiary, Canmar (Canadian Marine Drilling Ltd.), and will summarize the objectives and requirements of a suitable ice monitoring system to support its drillships and SSDC. In response to these requirements, an ice monitoring system has been developed and implemented by Canmar and will be briefly described ... [Included is] a brief summary of the status of ice management in the U.S. Beaufort and some comments on the future of ice monitoring development. (Au)

G-131962
On ice breakup and ice jamming along the Mackenzie River / Kamphuis, J.W. Moir, J.R.
(Proceedings, Canadian Society for Civil Engineering 1982 Annual Conference, Edmonton, Alberta, May 27-28, 1982. - [S.l.] : CSCE, 1982, v. 3, p. 1247-1263, figures)
References.
NFSMO

The breakup of ice along the Mackenzie River between Fort Simpson and Fort Good Hope was studied from a dedicated aircraft in 1979, 1980 and 1981. More than 20 major ice jams were observed during their formation, stationary position and breakup. All observed jams displayed the same major characteristics and hence it is possible to generalize about ice melting, breakup and jamming. This paper describes the ice melting process, prior to any ice movement. It discusses the ice jamming process and the various parameters that affect this process. It also addresses several environmental factors influencing the detail character of the jams. (Au)

G-133124
A review of ice forces on offshore structures /
Masterson, D.M.
(C-CORE publication, no. 81-6, p. 1-35, figures)
(Technical report - Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering)
References.
ACU, NFSMO

... The study of ice forces on structures has been active for many years and is accelerating rapidly. Numerous conferences have been held around the world dealing with the topic and the literature is voluminous. This report is a brief review of the literature as it applies to an offshore platform in the Canadian Arctic and particularly to the development of a design for a full scale test structure. The review is necessarily brief but is intended to give basic knowledge of the state of the art. Our knowledge of ice failure mechanisms and resulting forces on structures has advanced rapidly over the past few years and is continuing to grow. (Au)

G-136522
Ice pressure ridge height statistics Beaufort Sea : December 1-16, 1979 / Intera Environmental Consultants Ltd. Canada. Atmospheric Environment Service [Sponsor].
Ottawa : Intera Environmental Consultants Ltd., 1980.
1 v. (various pagings) : figures, tables ; 28 cm.
Cover title.
References.
NFSMO

... In the late fall of 1979, an extensive remote sensing program was conducted over portions of the Beaufort Sea in an effort to collect data sets that would serve as the basis for the ice motion models .... One of the most important ice features required for the models and for the historical summaries is the occurrence of ice pressure ridges. In particular, pressure ridge frequencies and sizes are needed to assess the severity of the ice conditions and to calculate the ice motion forcing functions. In this study detailed analysis of laser profilometer data sets from the AES system were conducted in order to obtain summaries of these pressure ridge variables. This report contains the results of ridge analysis from the Beaufort Sea overflights between December 1 and 16, 1979. ... (Au)

G-137570
Floating islands of ice
(Geos, v. 13, no. 1, Winter 1984, p. 1-5, figures (some col.))
Contents: Potential research stations? / C. Mungall. - Mammoth pads circle the Arctic Basin / M. Jeffries
ACU, NFSMO

Information on the formation, circulation, observation, and tracking of ice islands and their potential as research stations within the Beaufort Sea and Arctic Ocean is presented. (ASTIS)

G-138550
Final report on engineering properties of ice in the Beaufort Sea / F.G. Bercha and Associates Limited. Dome Petroleum Limited [Sponsor].
[Calgary, Alta. : Distributed by APOA], 1976.
3 microfiches : figures, tables ; 11 X 16 cm.
(APOA project no. 130 : Preliminary design studies for production structures for the Beaufort Sea. Report, no. 3)
Appendices
References
ACU

Dome Petroleum Limited possesses leases and has interests in the development of production facilities in the South Beaufort Sea area, east of the international boundary, west of Banks Island, from shore to the 250 foot isobath. ... One area where overly conservative design is particularly inflationary is in the construction of the production facility supporting structure. As the integrity of this structure, to a large degree, depends on its ability to resist loads imposed on it by ice, a realistic design is largely contingent on accurate prediction of ice loads likely to be exerted on it. ... The objective of the work, then, is to determine and to present in a form suitable for designers, the relevant engineering properties of ice necessary to calculate the overall and localized stability of fixed and floating structures, and to document these properties in a manner suitable for more comprehensive scientific follow-up. ... Following a general description of the environment ... a systematic review and compilation of properties is undertaken. Chapter 2 concentrates on the geometric and kinematic properties of ice formation ... Chapter 3 reviews, updates and recommends ranges of the mechanical ice design properties. Chapter 4 gives a review of the various classes of simulators and presents some of the ice-structure interaction situations which are generally encountered. Chapter 5 gives a summary of the optimal design values of the properties discussed in Chapters 2 and 3. Finally, chapter 6 gives conclusions, lists shortcomings of the work, and presents recommendations for further relevant work. (Au)

G-138568
Operating manual for the Gulf NAVSAT buoy / Gulf Canada Resources Inc.
[Calgary, Alta. : Distributed by APOA], 1983.
1 microfiche ; 11 X 16 cm.
(APOA project no. 139 : Development of high resolution ice tracking system for the southern Beaufort Sea, Phase I - test prototype NAVSAT/NIMBUS-RAMS subsystem. Report, no. 1)
Appendix.
ACU

The following is a manual for the prototype Gulf NAVASAT buoy. The buoy contains an ARGOS platform, a NAVSAT receiver and a microprocessor with 6 K of RAM memory plus the associated interfaces to the NAVSAT receiver and ARGOS platform. ... The other section to this manual consists of the INSTALLATION INSTRUCTIONS. The buoy is turned off by opening up the buoy and removing the fuse. (Au)

See Also : A-103683, A-136999, C-61379, C-68225, C-111082, C-122700, C-139386, D-92134, D-107085, D-108448, D-108600, D-113077, E-11630, E-64467, E-126403, E-138126, F-82180, F-82198, F-82201, F-88390, I-73091, I-107026, I-107824, I-107832, I-113476, I-122815, L-21237, L-27545, L-35912, L-48666, L-54020, L-108413, L-120596, L-122637, L-129879, M-133132, Q-9679, Q-15504, Q-15547, Q-16241, Q-26450, Q-31070, Q-43346, Q-44857, Q-46566, Q-47503, Q-55484, Q-56146, Q-71366, Q-74195, Q-80470, Q-80853, Q-83852, Q-83879, Q-83887, Q-96377, Q-107948, Q-107964, Q-107972, Q-107980, Q-108022, Q-108057, Q-108405, Q-108480, Q-114650, Q-115517, Q-115746, Q-115754, Q-116220, Q-116351, Q-116661, Q-119008, Q-120669, Q-124192, Q-126853, Q-127280, Q-127299, Q-127337, Q-127779, Q-132780, Q-136751, Q-137723, Q-137740, Q-138517, Q-138525, Q-138533, Q-138541, Q-139696

H - BOTANY

H-3778
Vascular plant range extensions to the Heart Lake area, District of Mackenzie, Northwest Territories / Cody, W.J. Talbot, S.S.
(Contribution - Alberta University. Boreal Institute for Northern Studies, no. 52)
(Canadian field-naturalist, v. 92, no. 2, Apr.-June 1978, p. 137-143, maps)
References.
ACU

The Heart Lake study area is briefly described. Two taxa, Eleocharis compressa and Rhynochospora alba, are reported from the continental Northwest Territories for the first time, and extensions of range for 19 additional taxa within the District of Mackenzie are recorded. (Au)

H-4421
Bryophytes from the area drained by the Peel and Mackenzie rivers, Yukon and Northwest Territories, Canada / Bird, C.D. [et al].
[Ottawa] : National Research Council, [1977].
[40]p. : ill., maps, tables ; 26cm.
(Canadian journal of botany, v. 55, no. 23, 1977, p.2879-2918)
References.
ACU

The distribution and general ecology of 263 bryophyte taxa are presented for an extensive area of coniferous forest, open fens, and alpine terrain along the Mackenzie River in the District of Mackenzie and the Peel River, a major tributary which extends into the Yukon. The continuous or discontinuous permafrost which underlies the area plays a major role in determining the vegetational communities that are present. Fire and disturbance by man initiate succession. Thirty-nine liverworts, 20 peat mosses, and 204 true mosses are reported. There are 43 new reports for the District of Mackenzie and 16 for the Yukon. ... (Au)

H-10740
Pipeline revegetation research : Dempster route test sites. Progress report - 1977 / Vaartnou and Sons Enterprises Ltd. Foothills Pipe Lines (Yukon) Ltd.
[Calgary : Foothills Pipe Lines (Yukon) Ltd.], 1978.
v, 28 leaves : map, figures ; 28cm.
(Environmental report - Foothills Pipe Lines

(Yukon) Ltd.)
Prepared for Foothills Pipe Lines (Yukon) Ltd.
Bibliography: leaves 25-28.
ACU

... This report describes Carmacks grassland, South Ogilvie Mountains and Eagle Plain sites. ... Specific concerns which will be looked at include the following: species adaptability, time of seeding, fertilizer requirements, establishment methods and possibilities in use of plants for assistance in erosion control. ... (Au)

H-11126
A classification of fire effects on the microclimate of forest and tundra ecosystems - final report / Rouse, W.R. Mills, P.F.
Ottawa : Dept. of Indian Affairs and Northern Development, 1976, c1977.
iii, 21p. : ill., tables ; 28cm.
(Environmental studies - Canada. Northern Environmental Protection and Renewable Resources Branch, no. 2)
(North of 60)
ISBN 0-662-01240-2
References.
ACU, SSU

The aims of this study are two-fold. The first is to summarize the microclimatic effects of burning of open subarctic woodland in terms of soil temperature and moisture; radiation; evaporation and evapotranspiration. The second is to compare the microclimatic characteristics of lichen woodland and of variously aged burns to wet and dry open tundra areas in terms of their energy balances. (Au)

H-11622
Biological productivity of the southern Beaufort Sea : phytoplankton and seaweed studies / Hsiao, S.I.C.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1976.
ii, 99p. : charts, map, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 12c)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 12c)
Bibliography: p.31-35.
ACU, NFSMO

Standing stock and in situ primary productivity of the southern Beaufort Sea phytoplankton were determined. ... Possible reasons for a greater standing stock and primary productivity at inshore stations are discussed. ... Diatoms were more sensitive than flagellates when they were exposed to crude oils, ... Primary production of seaweed was severely inhibited by all types of crude oil at relatively low concentrations. (Au)

H-11754
Nitrogen fixation in Arctic marine sediments / Knowles, R.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
44p. : map, figures, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 9)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 9)
Bibliography: p.37-41.
ACU, NFSMO

Nitrogen fixation was measured in grab and core samples of sediments from the Beaufort Sea and Eskimo Lakes. The indirect assay involving the reduction of acetylene to ethylene was used. Very low rates, of the order of 25 mg N/square meter year, were detected in untreated sediments. Activity was markedly stimulated by addition of glucose, sucrose, lactose, mannitol and malate, much less by acetate, and negligible activity was supported by N-acetylglucosamine, the chitin monomer. ... (Au)

H-23841
Range extensions of vascular plants in northern Yukon Territory and northwestern District of Mackenzie / Nagy, J.A. Pearson, A.M. Goski, B.C. Cody, W.J.
(Canadian field-naturalist, v. 93, no. 3, July-Sept. 1979, p. 259-265, map)
References.
ACU

Between 1970 and 1975 plant communities in the Yukon Territory and the District of Mackenzie north of 67 deg. N were investigated. We record three taxa new to the known flora of the Yukon Territory and one new to the flora of the District of Mackenzie. Among the other vascular plants listed here, nine are new to the range predicted by Hulten within the Yukon Territory, 23 are extensions within predicted ranges and thus corroborate these predictions, and 29 are extensions beyond predicted ranges. ... (Au)

H-23892
A vascular flora of the Caribou Range, Northwest Territories, Canada / Jasieniuk, M.A. Johnson, E.A.
(Rhodora, v. 81, no.826, 1979, p. 249-274, map)
References.
ACU

Presents an anotated list of species found in Caribou Range in the District of Mackenzie, N.W.T. Location of species and approximate number of collecting stations are included. (ASTIS)

H-25836
Preliminary studies on methanol oxidizing bacteria from the Mackenzie River, N.W.T. / Vanderpost, J.M.
[Edmonton] : Environmental Protection Service, Northwest Region, 1978.
vi, 31p. : figures ; 28cm.
(Technology development report - Canada. EPS. Northwest Region, EPS-4-NW-78- 2)
References.
ACU

This study was part of a Mackenzie Valley pipeline environmental assessment as a result of proposals to use methanol as an antifreeze in pipeline hydraulic testing and to release the waste methanol into the local waters after testing was completed. Methanol utilizing microorganisms were isolated from Mackenzie River water and their growth rates, respiration rates, and methanol utilizing rates were investigated. Respiration was found to occur at temperatures as low as 1.1 C. It was concluded that oxygen depletion problems would probably not occur as a result of raleasing methanol to the Mackenzie River, but that acute toxicity to various life forms might pose a more serious threat to the river's ecology. (Au)

H-30147
Nutrient limitations to plant production in two tundra communities / Haag, R.W.
(Canadian journal of botany, v. 52, no. 1, 1974, p. 103-116, tables)
(APOA project no. 37 : Arctic environmental research, tundra and ecological studies on the Mackenzie Delta and Devon Island. Report)
References.
ACU, NFSMO

Nitrogen and phosphorus nutrition were investigated as limiting factors to primary production in a lowland wet sedge meadow and an upland birch-willow-heath community. Response to nitrogen fertilization in both communities, including increased protein content and dry weight production, indicates that nitrogen supply limits production in both soils. In the upland community, phosphorus supply does not limit production, but in the lowland sedge meadow, dilution of the soil solution may decrease phosphorus availability and render this element limiting to production. Nitrogen, if available, can be taken up and metabolized into organic compounds despite low soil temperatures. Phosphorus metabolism may be directly limited by low soil temperatures and low available nitrogen levels. Low soil temperature exerts an indirect limitation on plant production through limitation of organic matter decomposition and microbial nitrification, thus limiting the rate of nitrogen cycling. ... (Au)

H-30155
Arctic plant communities east of the Mackenzie Delta / Corns, I.G.W.
(Canadian journal of botany, v. 52, no. 7, 1974, p 1731, map, tables (part. fold.))
(APOA project no. 37 : Arctic environmental research, tundra and ecological studies on the Mackenzie Delta and Devon Island. Report)
References.
ACU, NFSMO

Tundra vegetation was analyzed on the basis of 64 sampled and 12 described stands representing a wide variety of plant community types immediately east of the Mackenzie Delta, Northwest Territories. Five main types (Tall Shrub-Herb, Medium Shrub (alder), Low Shrub-Heath, Herb-Low Shrub-Heath, and Herb) and 11 subgroups were distinguished and classified on the basis of floristic similarity using a two-dimensional ordination and by physiognomy. A total of 70 species were sampled or observed in the stands. ... The areal extent of each major community type was determined using aerial photography for Richards Island, Caribou Hills, Eskimo Lakes, Tuktoyaktuk, and Atkinson Point study areas. (Au)

H-30163
Changes in Arctic Eriophorum Tussock communities following fire / Wein, R.W. Bliss, L.C.
(Ecology, v. 54, no. 4, Summer 1973, p. 845-852, photos., tables)
(APOA project no. 37 : Arctic environmental research, tundra and ecological studies on the Mackenzie Delta and Devon Island. Report)
References.
ACU, NFSMO

... Plant succession following fire was unique in that no new species invaded the area. Growth came principally from root stocks protected by the organic surface. Cottongrass and Carex spp. were the first to show regrowth following a June fire at one site. The role of cottongrass seedlings in colonizing these tussock communities was minor, because few seedlings older than 1 year were found on any of the sites. Epilobium angustifolium ssp. angustifolium and some Calamagrostis canadensis ssp. canadensis originated from seed although most plants of the latter species had long vigorous rootstocks. ... Annual plant production had almost recovered after two growing seasons, and nutrient content of the plants was higher in the burned areas. ... (Au)

H-30180
Cotton grass (Eriophorum vaginatum) germination requirements and colonizing potential in the Arctic / Wein, R.W. MacLean, D.A.
(Canadian journal of botany, v. 51, no. 12, 1973, p.2509-2513, graphs)
(APOA project no. 37 : Arctic environmental research, tundra and ecological studies on the Mackenzie Delta and Devon Island. Report)
References.
ACU, NFSMO

Germination requirements of cotton grass (Eriophorum vaginatum L.) were investigated to determine its potential for reseeding disturbed areas of the arctic tundra. Maximum seed production was 15.7 kg/ha, although production and viability varied widely. There was no seed dormancy and temperatures of 25-30 deg. C produced maximum germination rates. A light treatment enhanced germination but was not required. Cotton grass seed germinated under less favourable moisture conditions than several other native grasses that strongly invade disturbed arctic sites. Loss of viability during storage under room conditions was high for the first 10 months, yet 27.6-52.5 % of the seed remained viable at 19 months. The role that this species could play in revegetation is discussed. (Au)

H-30198
Functional effects of vegetation on the radiant energy budget of boreal forest / Haag, R.W. Bliss, L.C.
(Canadian geotechnical journal, v. 11, no. 3, Aug. 1974, p. 374-379, ill.)
(APOA project no. 37 : Arctic environmental research, tundra and ecological studies on the Mackenzie Delta and Devon Island. Report)
References.
ACU, NFSMO

In contrast to tundras, where the mass of vegetation is low and its effect on energy exchange relatively small, boreal forest vegetation exerts a more important buffering effect on energy flux to and from the ground surface. Air movement below the canopy is reduced, and a relatively high proportion of solar radiation is absorbed by the canopy directly, to be lost as sensible or latent heat. Removal of the buffer provided by stratified vegetation results in increased soil heat flux and ground temperatures, and increased depth of the active layer, which in areas of ice rich permafrost can lead to surface subsidence. (Au)

H-30341
Energy budget changes following surface disturbance to upland tundra / Haag, R.W. Bliss, L.C.
(Journal of applied ecology, v. 11, 1974, p. 355-374, ill., graphs, tables)
(APOA project no. 37 : Arctic environmental research, tundra and ecological studies on the Mackenzie Delta and Devon Island. Report)
References.
ACU, NFSMO

... The present study was undertaken to determine how the relationships between the components of energy dissipation in a native upland low shrub-heath tundra are altered by surface disturbance, and the effects of such alteration on the physical environment. The disturbances investigated were a winter road, controlled oil spill, tundra fire, and reseeded plots on a section of winter road. The study area is located at 69 deg. 27 sec. N, 133 deg. 00 sec. W, 1 km south of the Imperial Oil Base Camp at Tuktoyaktuk, N.W.T., in hummocky low shrub-heath tundra .... (Au)

H-30350
Revegetation studies - Norman Wells, Inuvik and Tuktoyaktuk, N.W.T. and Prudhoe Bay, Alaska : application to the proposed pipeline route / Hernandez, H.
[Winnipeg : Environment Protection Board, 1973].

vii, 127p. : ill., tables ; 28cm.
(Towards an environmental impact assessment of the portion of the Mackenzie gas pipeline from Alaska to Alberta. Appendix V: revegetation / Environment Protection Board. Interim report - Environment Protection Board, no. 3)
(APOA project no. 37 : Arctic environmental research, tundra and ecological studies on the Mackenzie Delta and Devon Island. Report)
Prepared for the Environment Protection Board.
ACU, NFSMO

Data are presented from August 1972 analyses for a variety of reseeding plots established at Norman Wells, Inuvik and Tuktoyaktuk, N.W.T. and Prudhoe Bay, Alaska in the early summers of 1970, 1971 and 1972. The four sites are in the northern boreal forest, boreal forest to tundra transition, upland dwarf shrub-heath tundra and coastal wet sedge polygon tundra respectively. ... Eight different fertilizer treatments were tested over the years of this study. ... Tentative and preliminary revegetation techniques and seed mixes are proposed. (Au)

H-38911
Alpine macrolichen vegetation in the Canadian cordillera of Alberta and the Yukon / See, M.G.
Ottawa : National Library of Canada, 1978.
3 microfiches : ill., maps, photos. ; 10.5x14.8cm.
(Canadian theses on microfiche, no. 36471)
Thesis (M.Sc.) - University of Alberta, Edmonton, Alberta, 1978 - xviii, 228p.
Appendices.
Bibliography: p.208-219.
ACU

Major objectives were to: (1) determine species richness (S), evenness (J), diversity (H') and cover; (2) examine habitat factors in relation to vegetation; (3) describe and compare communities; (4) evaluate community distribution; and (5) compare macrolichen and vascular plant communities. Study areas included Prospect Mountain and the Divide in the Mountain Park region, Alberta, and the Nahoni Range and Ogilvie Mountains in the Yukon. All areas were characterized by patterned ground, and comparable acidic and basic substrates were sampled in each region. ... The correspondence of macrolichens and vascular plant communities to environmental factors from regions in the present study are considered to be adequate for predicting vegetation within the uninvestigated, intermediate Cordilleran alpine areas. (Au)

H-38920
Vegetation change and fire frequency in the western subarctic / Johnson, E.A.
Ottawa : National Library of Canada, 1979.
2 microfiches : ill., maps ; 10.5x14.8cm.
(Canadian theses on microfiche, no. 36926)
Thesis (Ph.D.) - University of Saskatchewan, Saskatoon, Saskatchewan, 1977. - xi, 106p.
Bibliography.
ACU

The change of vegetation composition, with particular reference to frequency of fire, in the western subarctic is studied using two theoretical models and empirical data. ... The recovery of vegetation after fire is discussed with respect to the selective influence of habitat and fire. The habitat and fire selection regimes are shown to cause, respectively, a resistance and resilience type response in the same community. ... The often discussed "adaptation" of vegetation to fire is now given explicit form in the model and the ensuing analysis of data. (Au)

H-43621
Epipelic and epiphytic algal communities in Great Slave Lake / Moore, J.W.
(Canadian journal of botany, v. 58, no. 10, 1980, p.1165-1173, ill., map)
References.
ACU

Seasonal changes in the densities of epiphytic and epipelic algae were determined during 1975 and 1976 at two sites on the north shore of Great Slave Lake. ... Although densities remained high during the summer, they fell rapidly in October, followed by a secondary peak in November. ... The growing season for both communities was limited by the formation of ice in the fall, whereas the maximum standing crop of the flora was at least partially restricted by low nutrient levels (total phosphorus, 0.008 mg/L; total alkalinity, 30 mg/L). Seasonal changes in the density of epipelon were monitored during 1977 and 1978 at a third site on the north shore of the lake, where total phosphorus and total alkalinity ranged up to 0.010 and 94 mg/L, respectively. ... (Au)

H-44377
Growth rate of spruces related to the thickness of permafrost active layer near Inuvik, northwestern Canada / Sakai, A. Yoshida, S. Saito, M. Zoltai, S.C.
(Low temperature science. Series B. Biological science, v. 37, 1979, p. 19-32, ill., map, photos.)
(Contribution. Series B - Hokkaido. University, Sapporo. Institute of Low Temperature Science, no. 2192, 1979)
References.
ACU

Growth rate of white spruce (Picea glauca) and black spruce (Picea mariana) occurring at different topographical sites near Inuvik was studied with special reference to the thickness of active layer (the annual layer of thaw). ... The best sites for tree growth are on south-facing slopes and river alluvium where the soils are well-drained and have a thick active layer. The growth rate of white spruce at different topographic sites was related to the thickness of active layer. ... (Au)

H-44385
Biomass and productivity of Betula papyrifera near its climatic limit in northwestern Canada / Sakai, A. Yoshida, S. Saito, M.
(Low temperature science. Series B. Biological science, v. 37, 1979, p. 33-38, ill., photo.)
(Contribution. Series B - Hokkaido. University, Sapporo. Institute of Low Temperature Science, no. 2193, 1979)
References.
ACU

Measurements of biomass and estimates of net primary productivity were made on a stand of birch Betula papyrifera), 8 km southeast of Inuvik .... A partially destructive sampling technique was used. Total biomass was estimated at 74.5 t/ha, with 1.7 in leaves, 57.8 in stem and 15.0 in branch. Net primary productivity of above ground parts was estimated 2.16 t/ha.year with only 0.06 in the branches and 0.42 in the stems, compared with 1.68 in the leaves. ... (Au)

H-51233
Additional bryophytes from Nahanni National Park and vicinity, Northwest Territories, Canada / Steere, W.C. Scotter, G.W.
(Canadian journal of botany, v. 56, no. 3, 1978, p. 234-244)
References.
ACU

Additional fieldwork in Nahanni National Park and vicinity has added 91 species of bryophytes to the flora of that region. Twenty of these are new to the District of Mackenzie, and 37 are new to the Northwest Territories of Canada. Three species, Barbula coreensis (Card.) Saito, B. maxima Syed & Crundw., and B. perobtusa (Broth.) Chen are new to North America. (Au)

H-51250
Modern diatom assemblages from lake sediments in the boreal-arctic transition region near the Mackenzie Delta, N.W.T., Canada / Koivo, L.K Ritchie, J.C.
(Canadian journal of botany, v. 56, no. 8, 1978, p.1010-1020, figures, tables)
References.
ACU

Surface lake mud samples from 20 lake sites across the transition from northern boreal forest to tundra, near the Mackenzie Delta, N.W.T., yielded 284 taxa of diatoms of wide-ranging, mainly subarctic-boreal-nemoral geographical affinity. The ionic composition of the water column shows that 17 of the lakes are oligotrophic with roughly similar diatom assemblages. Distinctive diatom assemblages were recorded only from the three chemically exceptional lakes, saline, meromictic, and slightly N enriched, respectively. The ratio of Arphidineae to Centrales proved to have little use in classifying these particular lakes, although it has been effective in other geographical regions. (Au)

H-51284
Recovery sequence of Picea mariana - Vaccunium uliginosum forests after burning near Inuvik, Northwest Territories, Canada / Black, R.A. Bliss, L.C.
(Canadian journal of botany, v. 56, no. 17, 1978, p.2020-2030, ill., figures, tables (1 fold.))
References.
ACU

Picea mariana - Vaccinium uliginosum vegetation was sampled in a north-south transect near Inuvik, N.W.T., Canada. Four stages in the postfire recovery sequence were described. Little qualitative change in vascular plants was found in the transect or with time since burning, although quantitative changes were found to exist. Contrary to vascular plant development, an orderly postfire succession of cryptogamic species was found. The postfire recovery sequence by comparison with other open boreal forest studies has a persistent shrub-dominated stage ... Objective analyses by Bray-Curtis ordination and reciprocal averaging ordination were used to analyse the vegetation data and proved useful in the data reduction and interpretation of results. (Au)

H-51322
Seasonal changes in the standing crop of an epilithic algal population on the north shore of Great Slave Lake / Moore, J.W.
(Canadian journal of botany, v. 57, no. 1, 1979, p. 17-22, figures, tables)
References.
ACU

Seasonal changes in the density of epilithic algae were determined from June 1975 to November 1976 at three sites on the north shore of Great Slave Lake. Densities increased rapidly in May immediately after the disappearance of ice, showed only small fluctuations during the summer, and waned during October. Microscopic algae ... and other diatoms, reached peak abundance (2 x 1,000,000,000 macro cubic m/square cm) on irregular occasions (July, September, October) throughout the growing season. However, filamentous algae, mainly Ulothrix zonata, reached maximum densities (60 mg/square cm dry weight) during July of both years. Additional survey collections of epilithic algae were made at 14 sites in the east arm of the lake during June and July of 1975. ... Algal densities were considerably less than those recorded from the north shore, a reflection of lower nutrient and alkalinity levels. Maximum abundances for microscopic anu dilamentous algae were 1.05 x 1,000,000,000 macru cubic m/square cm and 4.1 mg/square cm respectively. (Au)

H-51349
Mosses of Nahanni and Liard ranges area, southwestern Northwest Territories / Vitt, D.H Horton, D.G.
(Canadian journal of botany, v. 57, no. 3, 1979, p. 269-283, ill., maps, photos., table)
References.
ACU

The Nahanni and Liard mountain ranges ... form the easternmost slopes of the Rocky Mountains and lie just east of Nahanni National Park in the southwestern corner of the District of Mackenzie, Northwest Territories. The moss flora of the area is rich in the number of taxa; 207 species and two varieties are reported from this relatively small area. Of these, 53 species are new records for the South Nahanni region. A number of rare or disjunct bryophyte species are found in the area. (Au)

H-51357
Distribution and abundance of attached, littoral algae in 21 lakes and streams in the Northwest Territories / Moore, J.W.
(Canadian journal of botany, v. 57, no. 6, 1979, p. 568-577, figures, tables)
References.
ACU

Collections of epilithic, epipelic, epiphytic, and epipsammic algae were made from the littoral zone of 21 lakes and streams in the Northwest Territories during 1975 and 1976. The growing season for the attached flora extended from June to October throughout the study area. All four communities displayed a unimodal growth curve during this period, reaching maximum abundance in either July or August. The end of the growing season came during the middle of October when the collection sites were frozen to the bottom. (Au)

H-51365
Bryophytes of Banks Island, Northwest Territories, Canada / Steere, W.C. Scotter, G.W.
(Canadian journal of botany, v. 57, no. 10, 1979, p.1136-1149, ill.)
References.
ACU

Thirteen species of Hepaticae and 184 moss taxa are reported from Banks Island, Northwest Territories, Canada. Of these, 10 Hepaticae and 58 mosses are previously unreported from Banks Island. The list includes literature reports and recent collections. (Au)

H-51381
Fire recurrence in the subarctic and its implications for vegetation composition / Johnson, E.A.
(Canadian journal of botany, v. 57, no. 12, 1979, p.1374-1379, ill.)
References.
ACU

The Weibull distribution is shown to fit well with empirical data of fire intervals for a population of sites. The distribution demonstrates that the recurrence of fire in the subarctic forests of the Northwest Territories, Canada, is predictable. The three parameters of the distribution describe in ecological terms the lag before reburning can occur, the expected recurrence time of fire, and the shape of the variation around the expected recurrence. The parameters behave consistently with logically independent empirical evidence related to the regional and local climate and topography. The relationship of the distribution's hazard of burning function to vegetation composition and r-K selection is discussed. (Au)

H-51411
Additions to the vascular plant flora of Nahanni National Park, Northwest Territories / Cody, W.J. Scotter, G.W. Talbot, S.S.
(Naturaliste canadien, v.106, no. 4, 1979, p. 439-450, map)
References
ACU

Recent botanical studies in Nahanni National Park have added considerable information on the flora of the Park. In this paper, 200 taxa are reported as new to the Park, 64 are new to the Mackenzie Mountains, 4 are new to the southern lowland region of the District of Mackenzie, and 5 ... are new to the flora of the Continental Northwest Territories. (Au)

H-51829
Lichens from the area drained by the Peel and Mackenzie rivers, Yukon and Northwest Territories, Canada. I. Macrolichens / Bird, C.D. Thomson, J.W. Marsh, A.H. Scotter, G.W. Wong, P.Y.
(Canadian journal of botany, v. 58, no. 18, 1980, p. 1947-1985, ill.)
References.
ACU

The distribution and general ecology of 249 macrolichen taxa is described for 230 000 square km of coniferous forest, open fens, and alpine terrain along the Mackenzie River in the District of Mackenzie, Northwest Territories, and the Peel River, a major tributary which rises in the Yukon Territory. Permafrost plays a major role in determining the plant communities that are present. Fire and man-made disturbances initiate succession. ... (Au)

H-55239
Attached and planktonic algal communities in some inshore areas of Great Bear Lake / Moore, J.W.
(Canadian journal of botany, v. 58, no. 21, 1980, p. 2294-2308, figures, tables)
References
ACU

The species composition and standing crop of epilithic, epipelic, and planktonic algae were determined in three widely separated inshore areas of Great Bear Lake during the summers of 1976, 1977, and 1978. ... The densities of the epilithon and epipelon were low in June but increased gradually during the summer, reaching maxima of /8x10,000,000 macro cubic m/square cm, respectively (19.5x100,000 and 40x100,000 cells/square cm), in either August or September. These values are among the lowest recorded for freshwaters and are probably due to continually low water temperatures and wave action rather than nutrient limitation. ... Plankton standing crops of up to 62 mg fresh weight/cubic m were recorded in June at a temperature of 0 deg. C, and they increased to 70-91 mg/cubic m (23.3x10,000,000 - 30.1x10,000,000 cells/cubic m) by September. These values are again among the lowest on record, a reflection of low water temperatures. The similarity in the species composition and standing crop of the plankton, epilithon, and epipelon in all collection areas was due to the similarity in water chemistry and temperature throughout Great Bear Lake. (Au)

H-65765
Fuel characteristics of arctic plant species and simulated plant community flammability by Rothermel's model / Sylvester, T.W. Wein, R.W.
(Canadian journal of botany, v. 59, no. 5, 1981, p. 898-907, figures, tables)
References.
ACU

The relative fuel-potentials of 12 northern tundra and forest-tundra ground species of the Mackenzie delta area were evaluated from measured fuel characteristics by simulating a test fire with the Rothermel (1972) fire behavior model. The relative importance of the fuel parameters were in decreasing order: moisture content, biomass, fineness (surface/volume ratio), packing ratio, silica-free ash content, and caloric content. The fuel-potential ratings of the vascular species and of the communities were differentiated primarily by their leaf characteristics. ... Subject to the limitations with respect to ether-extractive contents, the relative fuel potential of tundra and forest-tundra plant communities can be rated on measured fuel characteristics, community composition, and the criteria of the Rothermel model. Possible applications of this study were raised, particularly the use of relatively nonflammable plants in land management. (Au)

H-66850
Gymnocarpium hybrids from Canada and Alaska / Sarvela, J.
(Annales botanici Fennici, v. 17, no. 3, 1980, p. 292-295)
References.
ACU

The paper presents the distinguishing features of Gymnocarpium dryopteris (L.) Newm. subsp. x brittonianum Sarvela [subsp. et hybr. nov.: = subsp. disjunctum (Rupr.) Sarvela x subsp. dryopteris], G. x intermedium Sarvela, G. x achriosporum Sarvela and G. x heterosporum Wagner (Pteridophyta). A provisional outline is given of the distribution of the three first taxa in Canada and Alaska. Apomixis in these taxa is discussed. (Au)

H-70360
Taxonomy and status of Silene uralensis subsp. ogilviensis comb. nov. (Caryophyllaceae) in Yukon Territory, Canada / Brunton, D.F.
(Canadian journal of botany, v. 59, no. 7, 1981, p. 1361-1362)
References.
ACU

A new subspecific combination, Silene uralensis subsp. ogilviensis (Porsild) Brunton is proposed for a recently described endemic of the Ogilvie Mountains, Yukon Territory. On the basis of a review of the type material it is compared with other North American subspecies of S. uralensis and with the similar S. gonosperma of Eurasia and found to be intermediate between these two in some characteristics. No additional stations of this rare taxon have been located since its original discovery in 1968. (Au)

H-70378
Lichens from the area drained by the Peel and
Mackenzie rivers, Yukon and Northwest
Territories, Canada. II. Microlichens / Bird,
C.D. Thomson, J.W. Marsh, A.H. Scotter,
G.W. Wong, P.Y.
(Canadian journal of botany, v. 59, no. 7,
1981, p. 1231-1252, table)
References
ACU

A sequel to earlier papers on bryophytes and macrolichens, this treatment describes the distribution and general ecology of 314 microlichen taxa for 230 000 square km of coniferous forest, open fens, and alpine terrain along the Mackenzie River in the District of Mackenzie, Northwest Territories, and the Peel River, a major tributary which extends into the Yukon Territory. There are 103 new reports for the District of Mackenzie and 69 for the Yukon. Of the taxa, 87% are found in Europe and Asia as well as in North America, 1% are known only from Asia and North America; and 9% are restricted to North America ... (Au)

H-85200
Effects of long-term natural acidification on the
algal communities of tundra ponds at the
Smoking Hills, N.W.T., Canada / Sheath, R.G.
Havas, M. Hellebust, J.A. Hutchinson, T.C.
(Canadian journal of botany, v. 60, no. 1,
1982, p. 58-72, figures, tables)
References
ACU

Epipelic and planktonic algal communities have been examined periodically for 3 years from four tundra ponds which have very low pH values (1.8-3.6) and high heavy metal concentrations due to long-term fumigation by sulphur dioxide and sulphuric acid aerosols from nearby lignite burns. These communities have been compared with those of control ponds which are situated further from the burns and have alkaline waters (pH 8) due to calcareous marl soils. ... These results show that the flora of the fumigated ponds is atypical of tundra ponds but rather is similar to that of very acidic temperate waters such as those draining coal-mined areas or volcanic lakes. (Au)

H-85278
N.W.T. priority zones for forest fire suppression
/ McQueen, J.
(Proceedings - Workshop on Fire Ecology in
Resource Management, Edmonton, Alberta, 6-7
December, 1977 / Compiled by D.E. Dube.
Information report - Canada. Northern Forest
Research Centre, NOR-X- 210, 1978, p. 96-102)
ACU

The development of specific fire management objectives for D.M. is made within the context of several key considerations. These considerations are presented along with policy guidelines and operational considerations. (ASTIS)

H-96164
Pipeline revegetation research : northern British
Columbia test sites, progress report - 1978 /
Vaartnou and Sons Enterprises Ltd. Foothills
Pipe Lines (South Yukon) Ltd. [Sponsor].
Westcoast Transmission Ltd. [Sponsor].
(Environmental services - Foothills Pipe Lines
(South Yukon) Ltd.)
Appendix.
ACU

... This report describes revegetation studies currently underway in northern British Columbia and the lower Northwest Territories. These studies have been designed to increase knowledge of appropriate revegetation techniques and plant species useful for northern areas. ... This progress report reviews the objectives and methods of previous years' work and contains a brief summary of previous results. However, the bulk of the report outlines the 1978 evaluation results and the narrative accompanying the resulting tables focuses on significant results of each test site. (Au)

H-96245
Pipeline revegetation research : Dempster Lateral
test sites, progress report 1979 / Vaartnou and
Sons Enterprises Ltd. Vaartnou, M.
Foothills Pipe Lines (South Yukon) Ltd.
[Sponsor].
Calgary : Foothills Pipe Lines (Yukon) Ltd.,
1980.
v, 46 p. : figures, folded map, tables ; 28 cm.
(Environmental services - Foothills Pipe Lines
(Yukon) Ltd.)
Appendices.
References.
ACU

In September, 1977 a revegetation research program was initiated along the route of the proposed Dempster Lateral Gas Pipeline with the establishment of test sites in the Ogilvie Mountains and Eagle Plain. In 1978 and 1979 the program was expanded to include test sites near Willow Creek, in the Richardson Mountains, on the Anderson Plain and near Ya Ya Lake in the Mackenzie Delta. The purpose of the program was to obtain information necessary to design a revegetation program for rehabilitation of areas disturbed by pipeline construction. ... Results to date are encouraging but no conclusions can be drawn at this time because the candidate grasses have had insufficient exposure to the rigors of northern winters ... (Au)

H-96253
Pipeline revegetation research : Dempster Lateral
test sites, progress report 1980 / Vaartnou and
Sons Enterprises Ltd. Vaartnou, M.
Foothills Pipe Lines (Yukon) Ltd. [Sponsor].
Calgary : Foothills Pipe Lines (Yukon) Ltd.,
1981.
vi, 67 p. : figures, tables ; 28 cm.
(Environmental services - Foothills Pipe Lines
(Yukon) Ltd.)
Appendices.
References.
ACU

In September, 1977 a revegetation research program was initiated along the route of the proposed Dempster Lateral gas pipeline. Test sites were first established in the Eagle Plain and Ogilvie Mountains regions and in the following two years the program was expanded to include test sites near Willow Creek, in the Richardson Mountains, on the Anderson Plain and near Ya Ya Lake. At each site planting was duplicated in the spring and fall. At each site from twenty-one to twenty-nine varieties of grasses were seeded in space planted rows. ... All planting was replicated three times. The trial plants were evaluated annually for seedling emergence, plant vigour, seed production and survival. This progress report contains results to date from each site and conclusions wherever appropriate. ... (Au)

H-96261
Natural revegetation of disturbed sites along the
Dempster Highway, Yukon Territory / Hardy
Associates (1978) Limited. Foothills Pipe
Lines (Yukon) Ltd. [Sponsor].
Calgary : Foothills Pipe Lines (Yukon) Ltd.,
1981.
87 p. : figures, tables ; 28 cm.
(Environmental services - Foothills Pipe Lines

(Yukon) Ltd.)
Appendices.
References.
ACU

The purpose of this report is to provide a preliminary analysis of natural revegetation rates and composition on sites disturbed by construction or industrial activities along the Dempster Highway. The influence of different climatic regimes is evaluated, on a preliminary basis, by comparing revegetation success in three regions ... selected for study: Klondike River Valley, Ogilvie Mountains, and Eagle Plains ... (Au)

H-99147
Pollen diagrams in the Mackenzie Delta area, N.W.T. / Mackay, J.R. Terasmae, J.
(Arctic, v. 16, no. 4, Dec. 1963, p. 229-238, figures, map)
ACU

H-100064
Microbiological studies of aquatic habitats of the area of Inuvik, Northwest Territories / Boyd, W.L. Boyd, J.W.
(Arctic, v. 20, no. 1, Mar. 1967, p. 27-41, ill., figures, tables)
ACU

H-101702
Chemical composition of forage plants from the reindeer preserve, Northwest Territories / Scotter, G.W.
(Arctic, v. 25, no. 1, Mar. 1972, p. 21-27, tables)
ACU

H-101796
Plant succession on tundra mudflows : preliminary observations / Lambert, J.D.H.
(Arctic, v. 25, no. 2, June 1972, p. 99-106, ill., figure, tables)
ACU

H-102059
Mosses from the Mackenzie Mountains, Northwest Territories / Brassard, G.R.
(Arctic, v. 25, no. 4, Dec. 1972, p. 308)
ACU

H-102199
Ecological modifications caused by the removal of tree and shrub canopies in the Mackenzie Delta / Gill, D.
(Arctic, v. 26, no. 2, June 1973, p. 95-111, ill., figures, tables)
ACU

H-102873
A microbiological study of some lake waters and sediments from the Mackenzie Valley with special reference to cytophagas / Christensen, P.J.
(Arctic, v. 27, no. 4, Dec. 1974, p. 309-311, tables)
ACU

H-103250
Historical aspects of the northern Canadian treeline / Nichols, H.
(Arctic, v. 29, no. 1, Mar. 1976, p. 38-47, ill., figures)
ACU

H-106313
Reconnaissance of vegetation and soils along the Dempster Highway, Yukon Territory : I vegetation types / Pacific Forest Research Centre. Stanek, W. Alexander, K. Simmons, C.S. Canada. Environment Canada [Sponsor] Foothills Pipe Lines (Yukon) Ltd. [Sponsor]
Victoria, B.C. : Canadian Forestry Service, 1981.
32 p. : ill., figures, tables ; 28 cm.
References.
Cover title.
ACU

This report is the result of a survey completed in 1979, along the Dempster Highway, Yukon Territory, from the North Fork Pass (lat 64 degrees 30'N; long 138 degrees 15'W) to Peel River, Northwest Territories (67 degrees 22'N; 134 degrees 55'W) ... The report contains the description of 20 vegetation types and a discussion by sections of vegetation related geological, climatical, edaphical and pedological aspects. The results are tentative but provide a framework for a more complete ecological inventory and information for revegetation projects. ... (Au)

H-107204
Final vegetation report, northern Parry Peninsula / Hardy Associates (1978) Limited. Dome Petroleum Limited [Sponsor].
[Calgary, Alta.] : Hardy Associates (1978) Ltd., 1979.
1 microfiche : figures, plates ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWE09)
Appendices.
References.
ACU

The vegetation of the northern Cape Parry area was mapped by aerial photo interpretation in early 1979 as part of a preliminary vegetation report. ... This first classification and map were essential as an initial step in assessing impact of proposed marine base development. The vegetation study was combined with other environmental reports and was submitted for review by Indian and Northern Affairs, as Section 3.05 Vegetation in "Initial Environmental Overview for a fueling Staging Area for Sea Vessels at Summers Harbour - Booth Island or Wise Bay - Parry Peninsula", in June 1979 by Canadian Marine Drilling Ltd. The provision of detailed information on these vegetation units through a field survey was designated as a second study component. The following gives the results of this study in the form of an addendum to the first report. ... The observations and data taken at each site included; visual percent cover estimates for each species, designation of strata (bryophyte and lichen, dwarf shrub and herb, low shrub), slope, aspect, microtopography, soil, moisture regime, landform and notation of any disturbance. ... (Au)

H-107212
Vegetation of King Point, Pauline Cove and Baillie Islands / Hardy Associates (1978) Limited. Dome Petroleum Limited [Sponsor].
Calgary, Alta. : Dome Petroleum Limited, 1979
2 microfiches : figures, map ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWE10)
References.
ACU

Past reports have identified and evaluated the potential of harbour sites along the Canadian Beaufort Coast. ... This study provides a more detailed understanding of some of the more promising sites that have been previously evaluated. More specifically this report provides a brief description of the vegetation of King Point - Harbour Lagoon, Pauline Cove, Baillie Islands and Cape Bathurst. ... (Au)

H-107220
Final vegetation report, McKinley Bay, Northwest Territories / Hardy Associates (1978) Limited.
Dome Petroleum Limited [Sponsor].
Calgary, Alta. : Hardy Associates (1978) Limited, 1979.
1 microfiche : figures, plates ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWE11)
Appendix.
References.
ACU

The vegetation study of McKinley Bay was divided into two parts, a preliminary overview and a field reconnaissance. In the first part, the vegetation of McKinley Bay was described and mapped by aerial photo interpretation in mid 1979 as part of a preliminary vegetation report. ... This first classification and map were important aspects in assessing the impact of the proposed marine base development. ... The second stage involved the collection of detailed information on these vegetation units through a field survey. The following gives the results of this study in the form of an addendum to the first report. ... Observations taken at each site included a list of dominant species by strata (dwarf shrub, herb, bryophyte and lichen), soil moisture regime and landform. ... (Au)

H-112941
Relations entre spectres polliniques contemporains et topographie dans la vallee de la Coppermine, Territoires du Nord-Ouest = [Relationship between present-day pollen spectra and topography in the Coppermine River valley, N.W.T.] / Geurts, M.-A.
(Canadian journal of botany, v. 61, no. 2, 1983, p. 586-593, figures, table)
References.
English abstract.
Text in French.
ACU

Thirty six moss polster samples from forest tundra and shrub tundra collected along the Coppermine River Valley, N.W.T., result in six pollen assemblages associated with type landforms. Forest sites on moderately steep slopes of approximately 12 degrees yield spectra dominated by spruce. Spectra dominated by Salix (>50%) exist only at isolated sites where the shrub is the principal species found. Flat, well-drained surfaces on gentle slopes exposed to wind produce spectra dominated by more than 50% Betula. The assemblage Betula-Ericales corresponds to gentle slopes actively modified by cryogenic processes. The assemblages Betula-Salix and Salix-Betula are found on gentle, poorly drained slopes or in zones of shrub tundra where Salix is a pioneer species on surfaces newly exposed to weathering. The assemblage Vetula-Picea is not a specific indicator since it is found on various topographic sites. The paper proposes one example of the utilization of these relationships between pollen spectra and landforms, for the interpretation of fossil pollen samples. This example shows that the variations in pollen spectra of a stratigraphic diagram do not exclusively reflect climatic variations or ecologic successions, but may be due to environmental change brought about by geomorphologic processes. (Au)

H-113212
Genetic variation within and between populations of the asexual plant Puccinellia X phryganodes / Jefferies, R.L. Gottlieb, L.D.
(Canadian journal of botany, v. 61, no. 3, 1983, p. 774-779, figure, tables)
References.
ACU

Puccinellia X phryganodes (Trin.) Scriber and Merr is widely distributed in Arctic salt marshes. In North America the species, which is capable of extensive clonal growth, appears to be a sterile triploid (2n = 21); seed set has never been observed. Consequently it was predicted that the level of genetic variation would be low, both within and between populations. Examination of electrophoretic mobilities of isozymes of 12 enzyme systems in plants from three widely separated populations in Arctic Canada indicated a high level of variability both within and between the populations. The unexpected discovery of significant amounts of genetic variability suggests that sexual processes occur in this species. (Au)

H-113557
Notes on the vascular plants of the Mackenzie Mountain Barrens and surrounding area / Simmons, H. Miller, S. Melady, E. [Illustrator].
[Yellowknife, N.W.T.] : N.W.T. Renewable Resources, 1982.
xi, 132 p. : ill., figures ; 28 cm.
(Information report - N.W.T. Renewable Resources, no. 3)
References.
ACU

... The following pages contain notes on the vascular plants which have been collected from the Mackenzie Mountain Barrens and surrounding boreal forest, particularly the Godlin Lakes area. The origin of their names, their edibility or poisonous nature, and their various uses are detailed. Nearly forty references have been consulted, but doubtless there are many more. ... (Au)

H-122718
Reconnaissance vegetation studies on western Victoria Island, Canadian Arctic Archipelago / Edlund, S.A.
(Paper - Canada. Geological Survey, 83-1B, p. 75-81, figures)
References.
ACU

Reconnaissance observations of the flora and plant communities of western Victoria Island suggest that surficial materials strongly influence the flora. The widespread calcareous glacial deposits support a variety of calciphilous plant communities and flora. All three arctic ecosystems (Low, Mid, and High Arctic) occur on western Victoria Island. ... The vegetation of western Victoria Island is compared with calciphilous vegetation of the southern Queen Elizabeth Islands, Banks, Somerset, and Prince of Wales islands, and with vegetation on noncalcareous surficial materials of north-central District of Keewatin. Several bioclimatic zones are suggested, including an extension of the 'mini-forest zone' from the Queen Elizabeth Islands and an erect shrub limit and an erect shrub-forest limit wetlands. (Au)

H-137170
Banks Island, a natural attraction / Hancock, L.
(Alaska, v. 49, no. 12, Dec. 1983, p. 18-21, ill.)
ACU

This article describes the rich bird life and plant life of Banks Island, N.W.T. (ASTIS)

H-137910
Range extensions of vascular plants from the northern Yukon Territory / Cwynar, L.C.
(The Canadian field-naturalist, v. 97, no. 2, Apr.-June 1983, p. 170-176, figure)
References.
ACU

Fifty-two vascular plant taxa are reported from the northern Yukon for either the first time or as range extensions. Four taxa are new to the flora of the Yukon: Carex amblyorhyncha, Ceratophyllum demersum (Hornwort), Armeria maritima ssp. arctica (Thrift), and Artemisia biennis (Biennial Wormwood). Forty-two are reported as the first records for the northern Yukon; 31 beyond Hulten's (1968) predicted range limits and 11 within. Range extensions are also reported for 10 taxa previously collected within the northern Yukon. (Au)

H-138959
Morphology and description of an outlier population of tree-sized willows on western Victoria Island, District of Franklin / Edlund, S.A. Egginton, P.A.
(Paper - Canada. Geological Survey, 84- 1A, p. 279-285, figures, table)
References.
ACU

Near the head of Minto Inlet, on western Victoria Island, discontinuous thickets of Salix alaxensis (feltleaf willow), ranging in age from less than 5 years to at least 81 years, reach heights of up to 8 m. They thrive in half a dozen deep valleys and sheltered ravines along the north shore of the inlet, where the microclimate is favourable. These outliers represent disjunct populations more typical of floodplains near treeline, several hundred kilometres to the south and west. (Au)

H-139831
The role of history in determining vegetation composition, an example in the western subarctic / Johnson, E.A.
(Tree-line ecology : proceedings of the Northern Quebec Tree-line Conference / Edited by P. Morisset and S. Payette. Collection Nordicana, no. 47, 1983, p. 133-140, figures)
References.
ACU

This is a theoretical expansion of the idea (Johnson, 1981) that vegetation composition of the upland lichen woodlands is related to two levels of environmental dynamics: short term (fire frequency) and longer term (habitat). Vegetation dynamics for a location are described by a partitioned stochastic matrix. Its diagonal submatrices are the probabilities (proportions) of species survival or the transfer of abundance between species due to both replacement abilities of species related to density type effects, and fire frequency and magnitude (severity) effects. These submatrices have transition patterns that allow their members to all be capable of replacing each other. They are in this sense equivalent. The stochastic matrix for any location will consist of several diagonal submatrices that represent different equivalence groups (ecological groups or guilds) of plants. Characteristics of these equivalence groups are considered. ... (Au)

H-140295
Comparative morphology, ecophysiology, and life history characteristics of two High Arctic grasses, N.W.T. / Grulke, N.E.
Seattle, Wash. : University of Washington, 1983.
x, 172 leaves : ill. (some col.), figures, tables ; 28 cm.
Thesis (Ph.D.) - University of Washington, Seattle, Wash., 1983
Appendices.
References.
ACU

In the High Arctic, plants have been selected for adaptation to short growing seasons, low temperature, nutrients, light and moisture availability. Physical, rather than biotic factors dominate natural selection. Stress tolerant species would be expected in such an environment. However, two wide spread grass species with apparently very different life history strategies were found within a polar semi-desert landscape. Phippsia algida occurs in mesic sites and is a ruderal species ... in that it colonizes bare soil microsites maintained by needle-ice formation and sheet erosion, by a large seed production most years, and is relatively short-lived (¬24 yr). Puccinellia vaginata is a stress-tolerator in that it occurs in xeric sites with little disturbance or competition for resources, rarely produces mature seeds, and relatively long-lived (¬37 yr). This research focuses on the morphological, physiological and life history adaptations of these two grasses to an extreme, but variable environment. ... (Au)

H-140651
Acid rain effects on foliar histology of Artemisia tilesii / Adams, C.M. Dengler, N.G. Hutchinson, T.C.
(Canadian journal of botany, v. 62, no. 3, Mar. 1984, p. 463-474, figures, tables)
References.
ACU

The present study describes the effects of simulated acid raid (pH 2.5-5.6) on foliar histology of an arctic herb, Artemisia tilesii Ledeb., which is remarkably tolerant to naturally occurring atmospheric acidity at Smoking Hills, N.W.T. Plants were exposed to simulated acid rain twice weekly for 4 weeks in exposure chambers in the greenhouse. Droplets as acidic as pH 2.5 caused limited macroscopic foliar damage. However, much greater damage was observed when sectioned leaf tissue was examined microscopically. On leaves having no injury visible to the unaided eye, small lesions consisting of one to three collapsed epidermal cells were observed in scanning electron micrographs and in cleared leaves after exposure to rain of pH 3.0 and 3.5. Stomata remained open in damaged areas of acid-sprayed leaves. Lesions most commonly developed from an initial collapse of a few adaxial epidermal cells, followed by progressive injury of underlying tissues. Palisade and spongy mesophyll cells underwent hypertrophic (abnormal cell enlargement) and hyperplastic (abnormal cell division) responses in the region adjacent to severely collapsed tissue, causing reduced intercellular spaces. These effects isolated the injured areas from adjacent healthy tissues, and resembled wound periderm responses to fungal pathogens and to mechanical irritation. This response may be one mechanism of limiting acid rain damage. (Au)

See Also : A-90042, A-103152, B-139807, C-15733, C-99422, C-99708, C-101524, C-114111, C-125270, C-126950, E-83763, F-103365, G-73997, I-87122, I-117277, I-135631, I-139742, J-31437, L-17949, L-103470, Q-11657, Q-15504, Q-27421, Q-30120, Q-30139, Q-30171, Q-31178, Q-51306, Q-63576, Q-90115, Q-107948

I - ZOOLOGY

I-310
Nesting behaviour and food habits of parasitic jaegers at Anderson River delta, Northwest Territories / Martin, M. Barry, T.W.
(Canadian field-naturalist, v. 92, no. 1, Jan.-Mar. 1978, p. 45-50, map, tables)
References.
ACU

Based on the seven nests located at Anderson River delta in 1973, Parasitic Jaegers had a breeding density of one pair per 2300 ha. Breeding success was 14.3%. Males and females shared incubation. A chick at one nest was unattended by an adult only 8% of the time. Bird remains, particularly passerines, were found in 85.0% of the pellets collected. Microtine rodents were in 25.4% of the pellets. Other food included eggs, insects, and berries. (Au)

I-2933
Seasonal distribution, population status and behavior of the Porcupine caribou herd / Surrendi, D.C. DeBock, E.A. Canada. Wildlife Service.
Ottawa : Canadian Wildlife Service, 1976.
xiii, 144p. : ill., maps (part. fold), tables ; 28cm.
(Mackenzie Valley Pipeline investigations)
Prepared by the Canadian Wildlife Service and partially funded by the Environmental-Social Program, Ottawa, Government of Canada.
Bibliography: p.137-144.
ACU, SSU

A study of the Porcupine caribou herd was conducted from October 1972 through November 1973 and complements a study by Watson et al. (1973). A description and historical resume are presented. Distribution and movement data were obtained through general aerial reconnaissance and systematic transect flights. Information concerning herd composition was obtained from aerial photographs and ground observation posts. ... Caribou of the Porcupine herd appear to reflect the long term, traditional use of migration routes and seasonal movement patterns in the northern Yukon. Traditional river crossing points were utilized during migration, adult female caribou initiating most crossings. ... (Au)

I-2941
An inventory of moose habitat of the Mackenzie Valley and northern Yukon / Walton-Rankin, L. Canada. Wildlife Service.
Ottawa : Canadian Wildlife Service, 1977.
v, 39p. : ill., maps (part. fold.) ; 28cm.
(Mackenzie Valley Pipeline investigations)
Prepared by the Canadian Wildlife Service and funded by the Environmental-Social Program, Ottawa, Government of Canada.
References.
ACU

Moose movements were studied in a broad corridor along the Mackenzie River Valley from the British Columbia border to the Alaska border. All sightings of moose and moose signs were recorded and revealed that the islands of the Mackenzie River were important moose winter range. Browse surveys were also carried out and willow was discovered to be the most important species, providing over half (52.1%) of the total diet. (ASTIS)

I-2976
The response of peregrine falcons (Falco peregrinus) to aircraft and human disturbance / Windsor, J. Canada. Wildlife Service.
Ottawa : Canadian Wildlife Service, 1977.
v, 87p. : ill. (part. col.), tables, map : 28cm.
(Mackenzie Valley Pipeline investigations)
Prepared by the Canadian Wildlife Service and funded by the Environmental Social Program, Ottawa, Government of Canada.
References.
ACU

Peregrine falcons were exposed to aircraft and human activity and disturbance tests were carried out. Some conclusions are that birds were usually not disturbed by low-flying aircraft, and hikers disturbed birds most during the nestling period. (ASTIS)

I-4162
Bacterial populations in the Beaufort Sea / Kaneko, T. Roubal, G. Atlas, R.M.
(Arctic, v. 31, no. 2, June 1978, p. 97-107, map, tables, charts)
References.
ACU, NFSMO

Spacial and seasonal variation patterns were studied for bacterial populations in Beaufort Sea ice, water and sediment. Bacterial populations in the Beaufort Sea were found in concentrations as high as are found in temperate oceans. Bacterial populations, especially viable bacteria, were lower in surface water during winter than summer, but not in sediment. Beaufort Sea bacterial populations are mainly psychrotophic and are clearly adapted to growth at low temperatures. Ice conditions appear to be important in determining levels of bacterial populations in water. (Au)

I-4189
Diet of Peary caribou, Banks Island, N.W.T. / Shank, C.C. Wilkinson, P.F. Penner, D.F.
(Arctic, v. 31, no. 2, June 1978, p. 125-132, tables, map)
References.
ACU, NFSMO

The results of analyses of rumen contents from 101 Peary caribou (Rangifer tarandus pearyi J. A. Allen 1902) collected on Banks Island are presented. Peary caribou on Banks Island were found to be versatile, broad spectrum grazers specializing on upland monocots, to ingest few lichens, and to exhibit significant seasonal and/or regional differences in diet. (Au)

I-8397
Sphaeriid mollusc populations of eight lakes near Yellowknife, Northwest Territories / Healey, M.C.
(Canadian field-naturalist, v. 92, no. 3, July-Sept. 1978, p. 242-251, tables, map)
References.
ACU

Sphaeriidae were about twice as abundant in eight lakes near Yellowknife, Northwest Territories as previously reported for Precambrian Shield lakes. Depth distribution varied from lake to lake and there appeared to be no predictable distribution of Sphaeriidae with depth even among limnologically similar lakes. In the Yellowknife lakes, depth distribution was dictated by the relative abundance of individual species and their particular depth distribution in the lake. ... (Au)

I-9784
Bowhead and white whales in the southern Beaufort Sea / Fraker, M.A. Sergeant, D.E. Hoek, W.
Sidney, B.C. : Dept. of Fisheries and the Environment, Beaufort Sea Project, 1978.
vii, 114p. : ill., maps (part. fold.), tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 4)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 4)
Bibliography: p.92-96.
ACU, SSU, NFSMO

The purpose of this report is to describe the biology of bowhead and white whales of the southeast Beaufort Sea and to assess the possible effects of oil and gas exploration on the whales. ... (Au)

I-10235
Variation in the density of ringed seal (Phoca hispida) birth lairs in the Amundsen Gulf, Northwest Territories / Smith, T.G. Stirling, I.
[Ottawa : National Research Council], 1978.
[5]p. : map, table ; 28cm.
(Canadian journal of zoology, v. 56, no. 5, May 1978, p.1066-1070)
References.
ACU

Identical helicopter-supported surveys indicated a large decrease in the density of ringed seal birth lairs in Amundsen Gulf, N.W.T., between 1974 and 1975. ... The factors stimulating the change in productivity in the area are not clear but the responses of the seals appear to have included lowered reproductive rates and movement of a significant portion of the population out of the area. (Au)

I-10634
How Andy Bahr led the great reindeer herd from western Alaska to the Mackenzie Delta / Scotter, G.W.
(Canadian geographic, v. 97, no. 2, Oct./Nov. 1978, p. 12-19, ill. (part col.))
ACU

An account of how Andrew Bahr drove 3,000 reindeer from Alaska to the Mackenzie Delta, a distance of 2,600 km. The drive took five years (1929-1934) and the final number that reached the Mackenzie Delta was 2,382. (ASTIS)

I-10979
Fall and early winter aquatic resource inventory, Dempster lateral pipeline route / Aquatic Environments Limited. Mann, G.J. Tsui, P.T.P. McCart, P.J. [Editor]. Foothills Pipe Lines (Yukon) Ltd.
[Calgary : Foothills Pipe Lines (Yukon) Ltd.], 1977.
2v. : maps, tables, graphs ; 28cm.
(Environmental report - Foothills Pipe Lines (Yukon) Ltd.)
Prepared for Foothills Pipe Lines (Yukon) Limited.
Bibliography : p.170-178.
Contents: - v.1. [Report] - v.2. Stream and lake catalogue.
References.
ACU

... Our general objective was to conduct fall and early winter baseline surveys ... which would a) characterize fish populations, b) describe other biotic and abiotic characteristics of the aquatic habitats relevant to the fishery resource, c) identify potential environmental impacts related to the construction and operation of a gas pipeline, and d) suggest mitigative measures to offset adverse potential environmental impacts. ... (Au)

I-11614
Biological productivity of the southern Beaufort Sea : zoobenthic studies / Wacasey, J.W.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
39p. : maps, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 12b)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 12b)
References.
ACU, NFSMO

Baseline data obtained from a sampling program carried out from 1971 through 1975, primarily during the open water season, demonstrate the existence of zonation of zoobenthos across the shelf of the southern Beaufort Sea. These zones, which can be characterized physically and biologically, are designated: (1) Estuarine Zone, (2) Transitional Zone, (3) Marine Zone, and (4) Continental Slope Zone. ... (Au)

I-11886
Spring (1978) waterfowl migration : proposed Dempster lateral gas pipeline route / Beak Consultants Ltd. Young, D.A. Foothills Pipe Lines (Yukon) Ltd.
[Calgary : Foothills Pipe Lines (Yukon) Ltd.], 1978.
19 leaves : graphs, map, tables ; 28cm.
(Environmental report - Foothills Pipe Lines (Yukon) Ltd.)
Prepared for Foothills Pipe Lines (Yukon) Ltd.
References.
ACU

This study collected information on the location and timing of spring waterfowl (primarily ducks, geese and swans) concentrations along the proposed Dempster Lateral pipeline route from Whitehorse to Chapman Lakes during the spring, 1978, between March 29 and May 22. ... Of the 21 waterbodies surveyed, eight were considered important to waterfowl becuase large concentrations of ducks (>1000) or swans and/or geese were present. Of these eight, seven are less than 3.2 km from the proposed pipeline route .... (Au)

I-11894
Spring migration of the porcupine caribou herd in relation to the proposed Dempster lateral pipeline route / Renewable Resources Consulting Services Ltd. Thompson, D.C. Foothills Pipe Lines (Yukon) Ltd.
[Calgary : Foothills Pipe Lines (Yukon) Ltd.], 1978.
xi, 70 leaves : maps (part. fold. in pocket), tables ; 28cm.
(Environmental report - Foothills Pipe Lines (Yukon) Ltd.)
Prepared for Foothills Pipe Lines (Yukon) Ltd.
Bibliography: leaves 66-69.
ACU

... Caribou may be expected to cross the corridor during spring migrations through the northern Ogilvies sometime between early April and mid-May. Two periods of migration may be expected in the Richardson Mountains; the first wave will cross the corridor between mid-March and late April with the second wave typically crossing between late April and mid-May. ... (Au)

I-11908
Winter distribution of the porcupine caribou herd in relation to the proposed Dempster lateral pipeline route / Renewable Resources Consulting Services Ltd. Thompson, D.C. Roseneau, D.G.

Foothills Pipe Lines (Yukon) Ltd.
[Calgary: Foothills Pipe Lines (Yukon) Ltd.], 1978.
xiii, 92 leaves : maps (part. fold. in pocket), tables ; 28cm.
(Environmental report - Foothills Pipe Lines (Yukon) Ltd.)
Prepared for Foothills Pipe Lines (Yukon) Ltd.
Bibliography: leaves 84-90.
ACU

An average of 50% of the portion of the Porcupine herd using Canadian winter range was located east of the Dempster corridor. ... It is considered most likely that any restriction in access of caribou which could be related directly to the pipeline would occur only during the relatively brief period of construction. Serious conflicts are not anticipated during the operational phase of the pipeline. ... the majority of interactions with caribou outside of the migration period will be restricted to that area of the corridor between the Peel-Ogilvie River and the North Fork Pass. ... movement of caribou on their winter range is a normal occurrence and that the effects of any displacement of caribou from the corridor may not be significant. (Au)

I-14028
A key to some larvae of Chironomidae (Diptera) from the Mackenzie and Porcupine River watersheds / Oliver, D.R. McClymont, D. Roussel, M.E.
Ottawa : Fisheries and Marine Service, Fisheries and Environment Canada, [c1978].
iv, 73p. : ill. ; 28cm.
(Technical report - Canada. Fisheries and Marine Service, no. 791)
(Technical report - Canada. Fisheries and Marine Service. Western Region, no. 113)
References.
ACU

Chironomid larvae were collected and identified from the Fort Simpson and Mackenzie Delta areas, Northwest Territories, and the Old Crow area, northern Yukon Territory. Illustrated keys based on these larvae are presented with brief notes on some of the species. Approximately 140 taxa in 75 genera and six subfamilies are keyed. Most of the taxa keyed inhabit medium- to large-sized rivers. (Au)

I-15423
Effects of sediment addition on macrobenthic invertebrates in a northern Canadian river / Rosenberg, D.M. Wiens, A.P.
(Water research, 1978, v. 12, p. 753-763, figures, tables)
References.
ACU

Two channels built into the Harris River, Northwest Territories were used to study responses of invertebrates to sediment addition. ... Sediment addition caused (1) higher numbers of Oligochaeta and Simuliidae to drift in August and September; (2) higher numbers of Plecoptera and Ephemeroptera to drift in September but not in August; and (3) higher numbers of Hydracarina and Chironomidae to drift in August but not September. ... (Au)

I-20265
Muskox-caribou summer range relations on Banks Island, N.W.T. / Wilkinson, P.F. Shank, C.C. Penner, D.F.
(Journal of wildlife management, v. 40, no. 1, 1976, p. 151-162, map, tables)
References.
ACU

The use of food and space by muskoxen (Ovibous moschatus) and Peary caribou (Rangifer tarandus pearyi) in north-central Banks Island was studied in summer 1973 to ascertain whether interspecific competition was occurring. The distribution and dispersion of the two ungulates overlapped only negligibly, and their preferred habitats and diets were correspondingly different. ... We concluded that competition was not occurring. (Au)

I-20362
The small mammals of the Mackenzie Delta region, Northwest Territories, Canada / Martell, A.M. Pearson, A.M.
(Arctic, v. 31, no. 4, Dec. 1978, p. 475-488, map, tables)
(Contribution - Alberta. University. Boreal Institute for Northern Studies, no. 58)
References.
ACU, NFSMO

The paper reports on 3800 small mammals taken in taiga and tundra east of the Mackenzie River Delta between 1971 and 1974. Local distributions are given for all 100 species of small mammals recorded in the region, plus two accidentals. In addition, abundance, body and cranial measurements, and reproductive information is presented for the 8 species collected during the study. The taxonomic status of Clethrionomys rutilus platycephalus is discussed. (Au)

I-20400
The range-relationships of musk-oxen and caribou in northern Banks Island in summer 1973 : a study of interspecies competition / LGL Limited, Environmental Research Associates. Wilkinson, P.F. Shank, C.C. N.W.T. Game Management Division.
Edmonton : LGL Ltd., 1974.
2v. : figures, maps, tables ; 29cm.
Prepared for Government of the Northwest Territories, Dept. of Economic Development, Game Management Division.
Appendices.
Bibliography: leaves 304-314.
ACU

This report presents the results of a study ... in summer 1973. ... The evidence presented in this report leads to four main conclusions: (i) that the use of food and space by musk oxen ... showed a slight degree of overlap; (ii) that the observed degree of overlap probably did not indicate the existence of interspecies competition between musk oxen and caribou; (iii) that interspecies competition for food or space is unlikely to occur in the near future between musk oxen and caribou ...; (iv) that musk oxen and caribou ... were both within the carrying capacity of their range. ... (Au)

I-21300
Mackenzie Delta project : final report / Environmental Research Associates.
[Calgary : Distributed by APOA, 1970].
1 microfiche ; 11x16cm.
(APOA project no. 11 : Mackenzie Delta ornithological study. Report)
References.
ACU, NFSMO

Purpose: To delineate important and critical nesting, moulting, gathering ground, staging and migration routes of the birds in the Mackenzie Delta region. The study area was later expanded to include the coastal region from Herschel Island to the Baillie Islands and north to the bird sanctuary of Banks Island. Field work was conducted in four stages to coincide with major changes in ornithological activities such as spring arrival, nesting, moulting and fall staging. The project started in June, 1970, and was completed in October of the same year. ... report provides estimates of bird numbers and describes the habits of migratory and other species of birds that were observed. Some preliminary assessments of the potential impact of oil exploration and production on birds which utilize the study area are included. (Au)

I-22624
Fall migration of the porcupine caribou herd in relation to the proposed Dempster lateral pipeline route / McCourt Management Ltd.
Thompson, D.C. Foothills Pipe Lines (Yukon) Ltd.
[Calgary : Foothills Pipe Lines (Yukon) Ltd.], 1979.
ix, 57 leaves : figures, maps (part. fold. in pocket) ; 28 cm.
(Environmental report - Foothills Pipe Lines (Yukon) Ltd.)
Prepared for Foothills Pipe Lines (Yukon) Ltd.
Bibliography: leaves 53-55.
ACU

In a typical year, the majority of caribou which cross the Dempster corridor may be expected to cross in two relatively well-defined, albeit broad areas, one in the Ogilvie Mountains and the other in the Richardson Mountains. The numbers of caribou which cross the corridor in each of these two locations is not predictable from a knowledge of the distribution of the herd during the late summer. Caribou may be expected to cross the corridor during fall migration through the Richardson Mountains between early September and early October; caribou may be expected to cross the corridor in the Ogilvie Mountains between early October and mid-November. It appears that southward migration is initiated by the first snow storm of the season. (Au)

I-23922
The state of knowledge of the Porcupine Caribou Herd / Kelsall, J.P. Klein, D.R.
[S.l. : s.n., 1979?].
22 leaves : figure ; 28cm.
Bibliography: leaves 16-22.
ACU

This paper provides an assessment of the state of knowledge of the Porcupine Caribou Herd and its habitat, drawing on analogy with other studies where necessary. The history of the animals, their current range, food habits, range studies and seasonal distribution and migration, are discussed. The current status and dynamics of the herd are indicated, as are major extraneous influences which seem likely to affect it in the near future. ... (Au)

I-25844
Species descriptions of some Plecoptera, Ephemeroptera, Trichoptera and Diptera from three areas of the N.W.T. / Moore, I.A.
Canada. EPS.
[Edmonton] : Environmental Protection Service, Northwest Region, 1977.
v, 57p. : figures ; 28cm.
(Manuscript report - Canada. EPS. Northwest Region, NW-77- 9)
Prepared for the Environmental Protection Service.
Bibliography: p.54-56.
ACU

Description of 10 species of Ephemeroptera ..., 9 species of Trichoptera ... and 12 species of Diptera ... collected from north western Canada are given. Distribution records of an additional 7 species of Plecoptera ..., 1 species of Ephemeroptera ..., 4 species of Trichoptera and 10 species of Diptera ... are also presented. (Au)

I-25852
Species descriptions of larval and adult Chironomidae collected from three different areas of the N.W.T. / Moore, I.A. Canada. EPS. Northwest Region. N.W.T. District Office.
[Edmonton] : Environmental Protection Service, Northwest Region, 1977.
v, 54p. : figures ; 28cm.
(Manuscript report - Canada. EPS. Northwest Region, NW-77- 14)
Prepared for Northwest Territories District Office, Environmental Protection Service, Northwest Region.
References.
ACU

Species descriptions of larval and adult Chironomidae collected from Yellowknife Bay (Lat. 62 deg. 25 sec. N; Long. 114 deg 20 sec. W), the Mathews Lake area (Lat. 64 deg. 03 sec N; Long. 111 deg. 15 sec. W) and the Itchen Lake area (Lat. 65 deg. 31 sec. N; Long. 112 deg. 50 sec. W) are given. ... (Au)

I-29963
Seabirds of the southeastern Beaufort Sea / LGL Limited, Environmental Research Associates.
Searing, G.F. Richardson, W.J. Canada. Wildlife Service. Kuyt, E. Barry, T.W.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
2 vol. : ill., maps, tables : 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 3a, 3b)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 3a, 3b)
Title varies: A study of seabirds in the coastal Beaufort Sea area, 1972 and 1974.
Bibliography: p.194-201.
Contents: no. 3a Summary report / by Thomas W. Barry. - no. 3b Aircraft and group observations in 1972 and 1974 / Gary F. Searing, W. John Richardson, LGL Limited; Ernie Kuyt and Tom W. Barry, Canadian Wildlife Service.
ACU, NFSMO

... Various survey methods were employed to determine temporal and spatial distribution of seabirds. From several points along the coast we made counts of spring migrants. Aerial surveys were used to learn the distribution and concentration of seabirds using open leads in the ice and throughout the open water season. Aerial surveys were also used to sample the coastal breeding and molting species. Aerial surveys in the fall sought to locate concentrations in the littoral zone. ... Data on the distribution and movements of seabirds and other birds in the southeastern Beaufort Sea area were gathered during 1972 and 1974. Data collected during offshore aerial surveys conducted over the Beaufort Sea during 1974 were analysed in relation to ice-cover conditions; the results of such analyses indicated the distributions and movements of birds offshore during a year of above-average ice cover. It was found that the distributions of most species are related to the amount of ice cover present and that birds generally prefer areas of at least partly open water. Maps of species distributions and abundances in relation to ice-cover conditions were prepared for offshore areas. ... (Au)

I-29971
Bird migration along the Beaufort Sea coast : radar and visual observations in 1975 / LGL Limited, Environmental Research Associates.
Richardson, W.J. Morrell, M.R. Johnson, S.R.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
ii, 131p. : ill., photos., tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 3c)
(APOA project no. 72 : Beaufort Sea

Environmental Program. Report, no. 3c)
Bibliography: p.117-122.
ACU, NFSMO

Bird distribution within and the patterns and timing of movements over the south-central Beaufort Sea and northern Yukon were studied from 9 May to 9 July 1975. ... Birds often flew east and west more or less parallel to the coast on a broad front. Such flights often extended over the southern Beaufort Sea to the limit of detectability (55 km or more offshore) and across the width of the North Slope. However, there was usually some degree of concentration along the shore, and on some occasions few firds were aloft more than 15 or 20 km offshore. Small numbers of birds were occasionally detected flying northwest and east over the British Mountains. Until late May, both eastward and westward movement were usually of low density; thereafter, movement in both directions was denser, although still variable in density from hour to hour and day to day. ... (Au)

I-29980
Fishes of the Yukon coast / Kendel, R.E.
Johnston, R.A.C. Lobsiger, U. Kozak, M.D.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
xi, 114p. : ill., maps, photos., tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 6)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 6)
Bibliography: p.41-45.
ACU, NFSMO

The purpose of this study was to collect baseline information regarding the inshore fisheries resource and the aquatic environment of the western coastal Beaufort Sea, and to identify areas that could be critically affected by a major oil spill. We present data collected from April 1974 to September 1975. The study area included the coastal sea out to 7 km offshore, lagoons, bays and estuaries, bounded by the Blow River delta on the east and by Welles Point, Herschel Island, on the northwest. Of 21 species of fish recorded within the study area 6 species represented 95% of the total catch in 1974. These were least cisco (Coregonus sardinella), Arctic cisco (Coregonus autumnalis), Arctic char (Salvelinus alpinus), fourhorn sculpin (Myoxocephalus quadricornis quadricornis), boreal smelt (Osmerus eperlanus), and humpback or lake whitefish (Coregonus clupeaformis). Of these only the fourhorn sculpin is considered a marine species, the remainder being anadromous species. ... Some of the life history information is presented along with a discussion of the available literature for each species. Age-length relationships, sex ratios and age at maturity are also presented for the most common species. (Au)

I-29998
Fishes of the outer Mackenzie Delta / Percy, R.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
vi, 114p. : ill., maps, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 8)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 8)
Bibliography: p.49-54.
ACU, NFSMO

Baseline information was gathered in 1974 and 1975 on 23 species of fresh-water, anadromous and marine fishes in the outer Mackenzie Delta and nearshore Beaufort Sea. The biological data presented include numerical abundance, summer and winter distributions, nursery areas, food habits, migration and age-length relationships. The possible impact of offshore exploratory drilling to the fish resources is discussed. Although the major impact would arise from an oil well blowout, the cumulative effects of other disturbance factors, such as seismic activity, disposal of drilling fluids and "housekeeping waters" will also be significant over the long term. ... (Au)

I-30325
The distribution and abundance of seals in the eastern Beaufort Sea / Stirling, I.
Archibald, R. DeMaster, D.P.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
58p. : ill., graphs, maps, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 1)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 1)
Bibliography: p.56-58.
ACU, NFSMO

The two main seal species which occur in the Beaufort Sea are the ringed seal (Phoca hispida) and the bearded seal (Erignathus barbatus). ... In a randomly stratified aerial survey, conducted in 1974, we counted 41,982 ringed seals and 2,759 bearded seals. In an indentical survey, conducted in 1975, we counted 21,661 ringed seals and 1,197 bearded seals, which indicated a substantial decline in the total population size. ... Substantial reductions in pup productivity, pup survival, ovulation rate, and pregnancy rate were also recorded in 1974 and 1975, compared with available data from the same population in earlier years and from other studies. It appeared that these changes were caused by abnormally heavy sea ice conditions in 1974. ... Neither ringed nor bearded seals were distributed randomly over depth but their distributions were different. Bearded seals were more strongly associated with shallow water areas. Ringed seal pupping habitat is widely distributed in the inshore fast ice areas of the western Arctic. Bearded seal pupping habitat is mainly restricted to the offshore moving lead areas north of the mainland coast and west of Banks Island. Both ringed and bearded seals concentrate in the moving lead areas during the winter. (Au)

I-30333
The distribution and abundance of polar bears in the eastern Beaufort Sea / Stirling, I.
Andriashek, D. Latour, P.B. Calvert, W.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
59p. : ill., graphs, maps, photos., tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 2)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 2)
Bibliography: p.53-55.
ACU, NFSMO

This report presents baseline information on the biology, distribution, and abundance of polar bears in the Beaufort Sea; identifies critical feeding and denning areas; and makes recommendations relative to projected industrial activity and future research requirements. From October 1970 through July 1975, 425 polar bears were tagged in the western Arctic. Subsequent to tagging, 25 polar bears were shot, 51 were recaptured, and 117 sightings were made of tagged bears (with numbers painted on them, up to two months after tagging). ... Seasonal movements in the population were largely determined by ice conditions. ... Five sea-ice habitat types for polar bears were described. ... The population of polar bears in the study area in 1974 was estimated as 1,521. Crude estimates of the population size in 1975 indicated that the total could be as low as 1,000 individuals. Recommendations for the protection of the critical feeding and maternity denning areas were made as were recommendations for future monitoring and research needs. (Au)

I-31208
Banks Island arctic fox studies : age structure and rabies infection from 1973-1974 trapline returns / Beak Consultants Ltd. Panarctic Oils Ltd.
Calgary : Beak Consultants Limited, 1975.
301. : figures, maps, tables ; 29cm.
Prepared for Panarctic Oils Ltd.
ACU, ACPO

... investigations on various aspects of arctic fox biology on Banks Island, N.W.T. Field work conducted in April 1974 consisted of collecting arctic fox heads from trapline caught animals. The samples were aged and brain tissue was analysed for rabies infection. The resultant data are compared with data for other arctic fox population. (Au)

I-31909
Des pelicans au 60 deg. parallele = [Pelicans 60 deg. North] / Poirel, M.
(North/Nord, v. 26, no. 2, Summer 1979, p. 2-5, col. photos.)
English abstract.
Text in French.
ACU

... the colony ... is located in the middle of Mountain Rapids in the Slave River, right on the Alberta-NWT border. Not only is this pelican colony the most northerly one in the world; it is also the only known one where pelicans nest in the middle of turbulent waters - usually these birds prefer the calm waters of lakes or lagoons. In addition, in the Slave River colony, the pelicans "fish" individually; another oddity, since elsewhere they seek their prey in a communal effort. ... (Au)

I-32166
Forty years of reindeer herding in the Mackenzie Delta, N.W.T. / Treude, E.
(Polar geography, v. 3, no. 3, July-Sept. 1979, p. 121-138, ill., figures, map, tables)
(Polarforschung, v. 45, no. 2, 1975, p. 129-148)
Translation of: 40 Jahre Rentierhaltung im Mackenzie Delta, N.W.T.
Bibliography: p.138.
ACU

Reindeer herding in the Mackenzie Delta area started in March 1935, when a herd of 2,370 animals was delivered to the newly established Reindeer Grazing Reserve. Conceived to supplement the dwindling wildlife resources of the Canadian Arctic and to improve the economic conditions of the native Eskimos, the policy was to keep a government-owned nucleus herd from which additional units could be obtained and put under Eskimo management. Several native-owned herds were set up, but for various reasons they all were returned to the government, the last one in 1964. A new approach was undertaken in 1960; in an attempt to demonstrate the economic feasibility of an Arctic reindeer industry, the project was placed under private management. There were plans to start large-scale reindeer breeding following modern conceptions of reindeer husbandry, but when the reindeer population dropped alarmingly, the Canadian Wildlife Service in 1968 accepted the responsibility for a five-year term. The main task then was to rebuild the herd and to conduct biological as well as management-related studies. In March 1974, the herd was finally sold to a native-owned Reindeer Company. In addition to providing a detailed review of reindeer herding in the Mackenzie Delta area, an attempt is made to evaluate the past economic importance of the project and to assess its potential future development. ... (Au)

I-32212
Comparative demography in Clethrionomys rutilus in taiga and tundra in the low Arctic / Martell, A.M. Fuller, W.A.
(Canadian journal of zoology, v. 57, no. 11, Nov. 1979, p.2106-2120, ill., figures, tables)
(Contribution - Alberta. University. Boreal Institute for Northern Studies, no. 64)
References.
ACU

Our working hypothesis was that winter mortality of Clethrionomys rutilus would be more severe in tundra than in taiga, and in winters with "unfavorable" rather than "favorable" conditions during establishment or ablation of the snow cover or in the subnivean environment during midwinter. Vole mortality was higher in the tundra (90-95%) than in the taiga (55-75%), in accordance with our prediction, but year to year differences in snow conditions were not necessary determinants of winter survival during the 4 years of the study. ... The onset of summer breeding was related to the time of snow melt, and a late spring was followed by a low rate of maturation of young-of-the-year females and small spring-to-fall increase in numbers. Few yound of either sex matured in two of three summers in the taiga, whereas about half the females and one-third of the males matured each year on the tundra. Litters were significantly larger on the tundra and spring sex ratios were female biased. Thus reproductive output was high on the tundra, which would offset high winter losses. ... (Au)

I-34657
Some factors influencing the distribution, seasonal abundance and feeding of subarctic Chironomidae (Diptera) / Moore, J.W.
(Archiv fur hydrobiologie, Bd. 85, Heft 3, 1979, p. 302-335, ill., map)
References.
ACU

The distribution, abundance and feeding of larval Chironomidae were correlated through multiple regression analysis with several environmental parameters. Sampling was conducted between June 1975 and October 1976 in Yellowknife Bay in the Canadian subarctic. The abundance of most Chironomidae and Tanypodinae (Chironomus decorus, Chironomus plumosus, Polypedilum nebeculosum, Tanytarsus sp., Glyptotendipes sp., Procladius denticulatus, Procladius bellus) within the bay increased in areas with reduced oxygen concentration (50-60% saturation). Although there was also a strong positive correlation between the density of these species and the organic content of the sediments, water depth, temperature, invertebrate predators and phytoplankton levels were not important in regulating densities. Several other species ... developed large populations in only deep well-oxygenated water. ... Temperature accounted for most of the variability in feeding intensity. (Au)

I-34665
Diversity and indicator species as measures of water pollution in a subarctic lake / Moore, J.W.
(Hydrobiologia, v. 66, no. 1, Sept. 15, 1979, p. 73-80, ill., maps)
References.
ACU

Benthic invertebrates were collected from a subarctic lake during 1976 to assess the effectiveness of diversity indices and indicator species as measures of heavy metal pollution. Collections were made near an operating metal mine, where sediments were contaminated with high levels of arsenic (up to 2,500 mg/kg dry weight), mercury (500 micro gram/kg), lead (850 mg/kg), copper (750 mg/kg) and zinc (950 mg/kg). ... While diversity indices and indicator species were ... ineffective in monitoring metal contamination, the strong negative correlation between the concentration of metals and the abundance of benthic organisms provided a much more realistic assessment of the level of contamination. (Au)

I-38504
Wildlife and wildlife habitat in the Great Slave Lake and Great Bear Lake regions, 1974-1977 / Jacobsen, R.
(Land/Wildlife integration, proceedings / Technical Workshop to Discuss the Incorporation of Wildlife Information into Ecological Surveys, 1 and 2 May, 1979, Saskatoon, Saskatchewan. Compiled and edited by D.G. Taylor. [Ottawa]: Lands Directorate, Environment Canada, [1980]. Ecological land classification series, no. 11, p. 31-36, map, table)
References.
ACU

The Land Use Information Series of maps has developed into the major systematic environmental-social research and information program for Canada. The deliniation and description of important and critical areas for wildlife is one of the primary thrusts of the research program. This paper describes the methods, objectives, and some of the results of one of the wildlife studies done during the program in the Great Slave and Great Bear Lake regions of the Northwest Territories. (Au)

I-38598
Role of a unionid clam population in the calcium budget of a small Arctic lake / Green, R.H.
(Canadian journal of fisheries and aquatic sciences, v. 37, no. 2, Feb. 1980, p. 219-224, ill., figures, tables)
References.
ACU

Growth rate and morphometric parameters were estimated for the Anodonta grandis (Pelecypoda, Unionidae) population in Shell Lake, N.W.T. (68 deg. N), based on sampling during the summer of 1972. Variation in density and size of Anodonta within the lake as a function of varying depth and slope of bottom was estimated by SCUBA during the summer of 1973. Predictive models based on these data estimate total calcium in shells of the Anodonto population to be 10.1 Mg, which is approximately half the amount of calcium dissolved in Shell Lake water. ... Independent estimates of calcium used for shell growth, and of calcium released by death of individuals and subsequent shell dissolution, approximate 50% (of the calcium in the Anodonta population) per year. This implies a mean residence time in the Anodonta population of approximately 2 yr. (Au)

I-38601
Growth and recruitment in experimentally exploited lake whitefish (Coregonus clupeaformis) populations / Healey, M.C.
(Canadian journal of fisheries and aquatic sciences, v. 37, no. 2, Feb. 1980, p. 255-267, ill., figures, tables)
References.
ACU

From 1971 to 1978 I conducted an exploitation experiment on lake whitefish (Coregonus clupeaformis) in four Northwest Territories lakes. The objective was to test the hypotheses that, when exploited, growth and recruitment would increase in the populations, and that the degree of increase would be proportional to the intensity of exploitation. ... The results of my experiment indicate that in unexploited lakes, recruitment and growth of young fish is regulated by the established population of mature fish. (Au)

I-38814
Patterns of activity of subarctic voles / Herman, T.B.
Ottawa : National Library of Canada, 1975.
1 microfiche : ill. ; 10.5x14.8cm.
(Canadian theses on microfiche, no. 24051)
Thesis (M.Sc.) - University of Alberta, Edmonton, Alberta, 1975. - ix, 40p.
Bibliography.
ACU

Activity and movements of female red-backed voles, Clethrionomys gapperi, were monitored with a radio-telemetry system over a 14-month period in a 900 sq. m natural enclosure. Animals exhibited a short-term (2-5 hr.) activity rhythm which remained relatively constant throughout the year and a circadian rhythm which shifted from diurnal in winter to nocturnal and crepuscular in summer. Among anestrous voles, movements and extra-nest activity were minimized during early winter when the subniveau space had not yet developed, and were maximized in late winter-early spring during snowmelt. In summer, activity and movements increased with the progression of reproductive phases from anestrous to lactating. (Au)

I-38890
The survival of bacteria in different types of Canadian arctic soil and mechanism of death after freezing and thawing / Lee, S.-K.
Ottawa : National Library of Canada, 1978.
3 microfiches : ill., photo. ; 10.5x14.8cm.
(Canadian theses on microfiche, no. 35745)
Thesis (Ph.D.) - McGill University, Montreal, Quebec, 1977. - xviii, 160p.
Appendices.
Bibliography: p.137-150.
ACU

Three soil samples from Churchill, Manitoba and two from Inuvik, N.W.T. ... ranged from sandy loam to clay. ... Loam and sandy loam soils were found to give better survival on freezing than other soil types tested. Bacterial populations appeared to stand the least chance of survival if frozen and stored in soils containing a high proportion of clay and a high content of phosphorus. ... Field studies showed that the total bacterial count in sandy and loam soils never dropped below 10,000,000 per gram of soil throughout the winter months. ... The mechanism of death of bacteria on freezing and thawing was also examined. The study indicated that there is a relation between the total cytochrome content of the cells of the bacteria investigated and their sensitivity to NaCl in the freezing menstruum. Oxidation activity studies suggested that cytoplasmic membrane disruption and permeability damage were the main cause of loss of viability. (Au)

I-41688
Zooplankton distribution in the eastern Beaufort Sea and the Northwest Passage / Shih, C.-T. Laubitz, D.R.
(Astarte, v. 11, no. 1, 1978, p. 45-54, ill., figures, tables)
References.
ACU

Medusae and planktonic crustaceans in 78 samples from the eastern Beaufort Sea and 12 samples from the Northwest Passage (Amundsen Gulf to Lancaster Sound) taken during the Hudson 70 Cruise were examined. Sixty-four species are recorded; 14 of these species are newly recorded for the area. Distribution of these planktonic animals in the eastern Beaufort Sea is discussed. By using affinity index (Fager & McGowan 1963), two groups of species are shown to exhibit strong affinity. One group consists of eleven species that are widely distributed regardless of the water depth; the other group comprises five deepwater calanoid species. Compared to western Beaufort Sea plankton, the planktonic fauna in the eastern Beaufort Sea is less influenced by the Pacific water. This is attributed to the effect of the clockwise gyral circulation of the surface arctic water in the Beaufort Sea. (Au)

I-43915
The 1976 white whale monitoring program, Mackenzie estuary, N.W.T. / F.F. Slaney & Company.
Fraker, M.A. Imperial Oil Limited [Sponsor].
Vancouver, B.C. : F.F. Slaney & Company Limited, 1977.
3 microfiches : figures, maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB08)
Appendices.
References.
ACU

... The main purpose of the 1976 whale monitoring program was to observe whale distribution and whale hunting success in relation to I.O.L. exploration activities in order to detect and minimize possible adverse effects of those operations, and to provide advise to I.O.L. supervisors regarding the timing and location of activities. ... (Au)

I-43923
The 1978 whale monitoring program, Mackenzie estuary, N.W.T. / F.F. Slaney & Company.
Fraker, M.A. Imperial Oil Limited [Sponsor].
Vancouver, B.C. : F.F. Slaney & Company Limited, 1978.
1 microfiche : ill., figures, maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB10)
References.
ACU

... The main purposes of the 1978 whale monitoring program were to: (1) Document the distribution and abundance of white whales in the Mackenzie Estuary and the success of Inuit hunters in relation to Esso exploration activities and (2) Provide on-location advice to Esso supervisors regarding the concentrations and movements of white whale in relation to the timing and location of operations in order to minimize potential adverse effects on whales or whale hunting. The primary objectives of the 1978 study were to: (1) Monitor white whale movements and concentrations in the Mackenzie Estuary; (2) Prevent potential interactions between white whales and Esso offshore island-building and island clean-up activities through on-location advice; (3) Determine the Inuit utilization of white whales; and (4) Prevent potential interference with the hunt resulting from Esso activities. ... (Au)

I-44008
The 1977 whale monitoring program, Mackenzie estuary, N.W.T. / F.F. Slaney & Company.
Fraker, M.A. Imperial Oil Limited [Sponsor].
Vancouver, B.C. : F.F. Slaney & Company Limited, 1977.
4 microfiches : figures, maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB09)
Appendices.
References.
ACU

... The main purpose of the 1977 whale monitoring program was to observe whale distribution and whale hunting success in relation to I.O.L. exploration activities in order to detect and minimize possible adverse effects of those operations, and to provide advice to I.O.L. supervisors regarding the timing and location of activities. The primary objectives of the 1977 study were to: (1) Monitor whale movements and concentrations in the Mackenzie Estuary. (2) Prevent adverse interactions between whales and I.O.L. offshore island-building and operational activities; and, (3) Determine the native utilization of whales and prevent interference with the hunt by I.O.L. activities. ... (Au)

I-44687
Fisheries studies along the Beaufort Sea coast / Frittaion, F.
(Fisheries and ocean news, v. 5, no. 4, Apr. 1980, p. 1-2, 111.)
ACU

The article describes studies being conducted at Parliayut Bay on the Tuktoyaktuk Peninsula where a "research team has been conducting an inventory and compiling the life history of the fish of both the coastal freshwater and the near-shore marine systems." The lack of previous studies and the natural resources development in this area prompted the need for such information. (ASTIS)

I-45195
[Bio-physical data appendix, artificial islands sites] / F.F. Slaney & Company. Imperial Oil Limited.
[Vancouver : F.F. Slaney & Company Limited, 1977].
1v. (unpaged) : 29cm.
Prepared for Imperial Oil Limited.
ACU

The data in this volume was compiled in 1976 at Imperial Oil's artificial islands sites in the Beaufort Sea. For each sampling station data are entered under the following headings: sediment analyses, physical/chemical oceanography data, phytoplankton identification and enumeration data, zooplankton identification and enumeration data, and, infaunal invertebrate data. Epibenthic invertebrate data sheets and fish field forms are also completed for some areas. (ASTIS)

I-46310
Fat levels in a subarctic population of Peromyscus maniculatus / Gyug, L.W. Millar, J.S.
(Canadian journal of zoology, v. 58, no. 7, July 1980, p.1341-1346, ill., figures, tables)
References.
ACU

Fat content (FAT), lean dry weight (LDW), and caloric content (KCAL) were examined in a natural subarctic population of Peromyscus maniculatus. FAT was not significantly correlated with size (LDW) of the animal. FAT of adult males was negatively correlated with minimum ambient temperatures and was not correlated with reproductive condition. LDW of adult males did not vary in relation to season. FAT of prebreeding adult females was high and decreased in response to breeding, but LDW increased in response to breeding so that KCAL remained constant. KCAL was low in adult females only after the breeding season. ... We suggest that fat levels are intrinsically controlled in wild Peromyscus according to the probability of having to make extraordinary energy expenditures and are not simply subject to extrinsic controls through the balance of food availability and energy demands. (Au)

I-47210
The 1979 whale monitoring program, Mackenzie estuary / LGL Limited, Environmental Research Associates. Fraker, M.A. Fraker, P.N. Esso Resources Canada Limited [Sponsor].
Sidney, B.C. : LGL Limited, 1979.
2 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB11)
Appendices.
References.
ACU

... The main purposes of the 1979 whale monitoring program were to: (1) document the distribution and abundance of white whales in the Mackenzie estuary and the success of Inuit hunters in relation to Esso exploration activities, and (2) provide on-location advice to Esso supervisors regarding the concentrations and movements of white whales in relation to the timing and location of operations in order to minimize potential adverse effects of whales or whale hunting. The primary objectives of the 1979 study were to: (1) monitor white whale movements and concentrations in the Mackenzie estuary, (2) reduce potential adverse interactions between white whales and Esso offshore island-building activities by providing on-location advice, (3) monitor Esso activities near Garry Island in relation to white whale hunting as requested in Land-Use Permit, N76J360, (4) ascertain the Inuit harvest of white whales, and (5) prevent potential interference with the hunt that might result from Esso activities. ... (Au)

I-50822
Distribution and abundance of birds on the Arctic coastal plain of northern Yukon and adjacent Northwest Territories, 1971-1976 / Salter, R.E. Gollop, M.A. Johnson, S.R. Koski, W.R. Tull, C.E.
(Canadian field-naturalist, v. 94, no. 3, July-Sept. 1980, p. 219-238, map, photos.)
References.
ACU

Observations on avian distribution, abundance, habitat relationships, and seasonal movements are summarized. A total of 122 species was recorded; at least 46 (and possibly an additional 14) nest in the area. ... (Au)

I-51845
Descriptions of the larvae of four species of Procladius from Great Slave Lake (Chironomidae: Diptera) / Moore, J.W. Moore, I.A.
(Canadian journal of zoology, v. 56, no. 9, Sept. 1978, p.2055-2057, table)
References.
ACU

Descriptions of larvae of Procladius denticulatus, Procladius culiciformis, Procaldius freemani, and Procladius bellus collected from Yellowknife Bay (lat., 62 deg. 25 sec; long., 114 deg. 20 sec.) are given. Procladius denticulatus was separated from the other species by its large size, a character which always proved distinctive. Procaldius culiciformis and P, freemani were separated from one another through several measurements including those of the basal antennal segment and the basal palpal segment. Almost all characters of the head were useful in distinguishing the much smaller P. bellus from the other species. (Au)

I-52337
A new species of the genus Notholca Gosse, 1886 (Brachionidae: Rotifera), from Great Slave Lake, N.W.T. / Chengalath, R.
(Canadian journal of zoology, v. 56, no. 2, Feb. 1978, p. 363-364, ill.)
References.
ACU

A new rotifer species of the genus Notholca Gosse, 1886 from Great Slave Lake, N.W.T., Canada, is illustrated and described. (Au)

I-52361
Taxonomy of mermithids (Nematoda: Mermithidae) of Canada and in particular of the Mackenzie and Porcupine river systems, and Somerset Island, N.W.T., with descriptions of eight new species and emphasis on the use of the male characters in identification / Mulvey, R.H. Nickle, W.R.
(Canadian journal of zoology, v. 56, no. 6, June 1978, p.1291-1329, ill., plates, tables)
References.
ACU

Twenty-four described mermithids are listed as known members of the Canadian fauna. Five of these are redescribed, and eight new species are described .... A taxonomic key is provided to separate the 10 genera to which the 24 species belong. Keys identify the species of the genera Gastromermis, Hydromermis, and Neomesomermis. Morphology of the male head and genitalia are critically analysed and consistent male characteristics incorporated into four keys. (Au)

I-52434
Predaceous nematodes of the family Mononchidae from the Mackenzie and Porcupine river systems and Somerset Island, N.W.T., Canada / Mulvey, R.H.
(Canadian journal of zoology, v. 56, no. 8, Aug. 1978, p.1847-1868, ill., plates, table)
References.
ACU

Paramonochus arcticus n.gen., n.sp., Coomansus fletcherensis n.sp., and Mononchus superbus n.sp. from the Mackenzie and Porcupine river systems and Somerset Island are described and illustrated. ... Other monochids from the river and lake samples are described and illustrated including Coomansus gerlachei and Monochus maduei which are reported for the first time in Canada. A new genus Parahadronchus is defined with Parahadronchus adamanicus (Jairajpuri, 1969) n.comb. as its type species, and generic diagnoses and a key to the 23 recognized genera of Monochidae are included. (Au)

I-52450
Blood volume determination in the ringed seal, Phoca hispida / St. Aubin, D.J. Geraci, J.R. Smith, T.G. Smith, V.I.
(Canadian journal of zoology, v. 56, no. 8, Aug. 1978, p.1885-1887)
References.
ACU

Red cell, plasma, and total blood volumes were determined in three ringed seals, Phoca hispida, through simultaneous labelling of both red cells and plasma. Total blood volumes were 139, 140, and 158 ml/kg of whole body weight (x=142 ml/kg). Lean body weight was determined in one seal; blood volume was calculated as 226 ml/kg lean body weight. (Au)

I-52507
Helminth parasites of wolverine, Gulo gulo, from the District of Mackenzie, Northwest Territories / Addison, E.M. Boles, B.
(Canadian journal of zoology, v. 56, no. 10,

Oct. 1978, p.2241-2242)
(Contribution - Ontario. Wildlife Branch. Research section, no. 78- 9)
References.
ACU

Trematodes (Alaria sp.), cestodes (Taenia martis (Zeder 1803), Taenia twitchelli Schwartz 1924, and Diphyllobothrium sp.), and nematodes (Physaloptera sp. (?) and Baylisascaris devosi (Sprent 1952)) are reported from wolverine, Gulo gulo, from the District of Makcenzie, Northwest Territories, Canada. (Au)

I-52973
Benthic species of Dorylaimus Dujardin 1845 (Nematoda: Dorylamidae) and Arctidorylaimus n.gen. (Arctidorylaimidae n.fam.) from the Mackenzie and Porcupine river systems, Northwest Territories, Canada / Mulvey, R.H. Anderson, R.V.
(Canadian journal of zoology, v. 57, no. 4, Apr. 1979, p. 743-755, figures, tables)
References.
ACU

Arctidorylaimidae n.fam. and Arctidorylaimus n.gen. are proposed to accommodate A. arcticus n.sp., a dorylaimid with longitudinal body ridges from aquatic habitats. A diagnosis of the family and genus, key to closely related genera, and description and illustration of the new species are provided. ... Dorylaimus lineatus, a new record for Canada, and Dorylaimus stagnalis are described from Canadian populations and their diagnostic characters compared and illustrated. The genus Dorylaimus is reviewed and a key, supplemented with tabulated characters and references, is provided for all valid species. Dorylaimus amplexor and Dorylaimus sulcatus are placed in species inquirendae. (Au)

I-54259
Fecundity changes in exploited populations of lake whitefish (Coregonus clupeaformis) and lake trout (Salvelinus namaycush) / Healey, M.C.
(Journal - Canada. Fisheries Research Board, v. 35, no. 7, July 1978, p. 945-950, figure, tables)
References.
ACU

This report considers the possibility that exploited populations of lake whitefish ... and lake trout ... may show increased individual fecundity. Average fecundity of both species in three exploited lakes varied significantly between 1972 and 1976, while fecundity in an adjacent unexploited lake did not vary. Changes in the fecundity of whitefish and trout in the exploited lakes were not clearly related to the pattern and intensity of exploitation, but fecundity of both species increased in all exploited lakes after exploitation, with trout showing the greater response. (Au)

I-54968
Influence of age, condition, sampling time and method on chemical constituents in free-ranging ringed seals, Phoca hispida / Geraci, J.R. St. Aubin, D.J. Smith, T.G.
(Journal - Canada. Fisheries Research Board, v. 36, no. 10, Oct. 1979, p.1278-1282, tables)
References.
ACU

Blood samples were obtained from 29 free-ranging ringed seals ... on Herschel Island, Y.T. .... Age, condition, sampling time, and method had variable influence on plasma chemical constituents. Plasma sodium, chloride, and cholesterol levels in three seals judged to be in poor condition were lower than in the 26 remaining seals. Uric acid was highest in shot pups .... Plasma levels of alkaline phosphatase, calcium, and cholesterol varied with age. Shot seals had higher plasma triglycerides and blood urea nitrogen (BUN), as a result of recent feeding. For resons unknown, the circulating levels of two hepatocellular enzymes were elevated in all samples. ... Glucose, bilirubin, inorganic phosphate, and asparate aminotransferase were not significantly influenced by any of the variables studied. The plasma electrolytes and BUN in five captive ringed seals sampled over a 1½-yr period correlated with levels in healthy, fasted free-ranging seals; uric acid levels were lower in the captive seals. (Au)

I-58602
A review of the systematics and ecology of Arctic char, Salvelinus alpinus, in the western Arctic / McCart, P.J. Aquatic Environments Limited.
[Ottawa : Dept. of Fisheries and Oceans], 1980.
vii, 89p. : figures, tables ; 28cm.
(Canadian technical report of fisheries and aquatic sciences, no. 935)
The work was done on behalf of the Fish and Marine Mammal Management Division, Fisheries Resources Section, Research and Resource Services Directorate, Fisheries and Oceans, Western Region.
ACU

... This document synthesizes the available data describing Arctic char in Beaufort Sea drainages in Alaska and Canada including the Mackenzie River and its tributaries. The major purpose of the document is to provide a detailed basis for future studies of Arctic char in the western Arctic, for the assessment of the potential impact of development, and for the management of the species. ... (Au)

I-58769
Report to Dina on the 1979 survey of the distribution and abundance of seals in the eastern Beaufort Sea / Stirling, I. DeMaster, D.P. Calvert, W.
Ottawa : Canadian Wildlife Service, 1980.
18 leaves : figure, tables ; 28cm.
References.
ACU

The sixth annual aerial survey of the distribution and abundance of seals in the eastern Beaufort Sea was conducted between 15 and 25 June 1979. Both the corrected and uncorrected numbers of ringed and bearded seals estimated to have been hauled out on the sea ice during the survey were lower than the high numbers recorded in 1978. ... We suggest that the seal populations in the eastern Beaufort Sea have probably recovered from the decline described earlier but that total numbers will continue to fluctuate between years. (Au)

I-59836
Yellow wagtail east of the Mackenzie Delta / Fraker, M.A. Fraker, R.N.
(Canadian field-naturalist, v. 94, no. 4, Oct.-Dec. 1980, p. 465-466)
References.
ACU

An extension of the known breeding range of the Yellow Wagtail (Motacilla flava) to east of the Mackenzie Delta is indicated. (Au)

I-62022
Wildlife and wildlife habitat in the Great Slave and Great Bear Lake regions 1974-1977 / Jacobson, R. Canada. Arctic Land Use Research Program. Canada. Northern Affairs Program.
Ottawa : Indian and Northern Affairs Canada, Northern Affairs Program, 1979.
viii, 134p. : ill., figures, maps (part.

fold.), plates, tables ; 28cm.
(Environmental studies - Canada. Northern Environmental Protection and Renewable Resources Branch, no. 10)
(Land use information series : user handbooks)
Report prepared under contract for the Arctic Land Use Research Program, Northern Environmental Protection and Renewable Resources Branch, Department of Indian Affairs and Northern Development.
Appendix.
Selected references and bibliography: p.94-108.
ACU

... From February 1974 through March 1977, Environment Canada carried out research for the Land Use Information Series (LUIS) in the forest and tundra areas surrounding Great Slave and Great Bear lakes in the Northwest Territories. During that period, the author worked as a wildlife ecologist, under contract to CWS, as part of the interdisciplinary team which produced the map series. As part of the primary research, a series of year-round, multi-year wildlife surveys were conducted ... essentially between 60 deg. N and the Arctic Coast and from the Mackenzie Valley east to well onto the tundra .... The wildlife species studied were selected largely on the basis of social values. Habitats that were important or critical for the maintenance or survival of wildlife populations were outlined and ecosystems (wildlife zones) were described. Animals studied included: moose, barren-ground caribou, woodland caribou, bison, bears (grizzly and black), red fox, lynx, muskox, marten, wolverine, muskrat, mink, otter, beaver, Arctic fox, wolf, waterfowl, and raptors (falcons and eagles). ... (Au)

I-62138
Growth of seasonal generations in three natural populations of Peromyscus / Gyug, L.W. Millar, J.S.
(Canadian journal of zoology, v. 59, no. 3, Mar. 1981, p. 510-514, figures, tables)
References.
ACU

Growth of Peromyscus maniculatus borealis, P. m. maniculatus, and P. leucopus was examined in relation to season and temperature. Average weight of P. m. borealis and P. n. maniculatus at weaning was positively correlated with average minimum temperature at that time. Growth from weaning to 40 days of age did not differ seasonally or among populations, although young P. m. borealis and P. m. maniculatus were relatively smaller and larger, respectively, than young P. leucopus. Growth after 40 days of age varied seasonally. Young mice that had the potential to mature during the summer of their birth continued to grow after 40 days of age. Young mice that could not mature during the summer of their birth stopped growing when 75-50% of adult size was reached. (Au)

I-62200
Porcupine caribou herd. International agreements on wilderness preservation and wildlife management : a study of the Porcupine caribou / LeBlond, N.R.
Ottawa : Canadian Arctic Resources Committee, [1979].
156p. : ill., maps, photos., tables ; 28cm.
(Yukon series, research monograph 3)
ISBN 0-919996-12-4
Footnotes.
ACU, SSU

This study focuses on key elements of a proposed international migratory caribou convention between Canada and the United States. The geographic area of concern is the northern Yukon, encompassing the region north of Dawson, generally described by the range of the Porcupine caribou herd .... The paper is divided into several sections. It begins with a brief sketch of the development of the concept of an international wildlife range and the subsequent myriad of proposals for the northern Yukon. A discussion of the biological characteristics of the Porcupine caribou herd follows .... Social, conservation, and industrial issues are then outlined in the context of land and resources planning and management. Special reference is made here to the role of native peoples and their use of the land and resources for traditional purposes, as well as their involvement in long-term planning and management. Existing international wildlife agreements are then critically evaluated .... The study concludes with possible elements of an international agreement and a critique of the most recent draft Convention between the United States of America and Canada for the Conservation of Migratory Caribou and their Environment. (Au)

I-62537
Comparison of sympatric dwarf and normal populations of least cisco (Coregonus sardinella) inhabiting Trout Lake, Yukon Territory / Mann, G.J. McCart, P.J.
(Canadian journal of fisheries and aquatic sciences, v. 38, no. 2, Feb. 1981, p. 240-244, figures, tables)
References.
ACU

A normal (205- to 340-mm fork length at maturity) and dwarf (85- to 135-mm fork length at maturity) form of least cisco ... exist sympatrically in Trout Lake, Yukon Territory. Dwarf ciscoes have significantly fewer gill rakers, lateral lines scales, and pyloric caeca and significantly more vertebrae, on the average, than normal ciscoes. Dwarf cisco mature earlier than normals (age 3 vs. age 6); however, normals are longer lived (maximum age 23 vs. age 14) and may produce nearly 30 times the annual complement of eggs produced by dwarf cisco. Spawning of dwarf cisco may precede that of the normals, and there is some evidence of both spatial segregation of the two forms by selective schooling and of differences in food habits. (Au)

I-63517
Large mammals of the Macmillan Pass area, Northwest Territories and Yukon / Gill, D.
Vancouver : AMAX Northwest Mining Company, Ltd., 1978.
59p. : ill., maps ; 23cm.
Bibliography: p. 55-58.
SSU

Baseline ecological information is presented on Dall's sheep, woodland caribou, moose, and grizzly bear in a 250 square km area centered on a proposed tungsten minesite in the Macmillan Pass area of the Northwest Territories and Yukon. ... (Au)

I-65277
Zooplankton communities in two inshore areas of Great Bear Lake, N.W.T., Canada / Moore, J.W.
(Arctic and alpine research, v. 13, no. 1, Feb. 1981, p. 95-103, figures, tables)
References.
ACU

... In this investigation, collections of zooplankton were made in two inshore areas of Great Bear Lake near Echo Bay and Conjuror Bay between April and October 1978. These samples were then used to describe the composition, structure, and seasonal development of crustacean, rotiferan, and protozoan communities. ... (Au)

I-67016
Behavioral structure and demography of subarctic
Clethrionomys gapperi and Peromyscus
maniculatus / Mihok, S.
(Canadian journal of zoology, v. 57, no. 8,
Aug. 1979, p.1520-1535, figures, tables)
(Contribution - Alberta. University. Boreal
Institute for Northern Studies, no. 61)
References.
ACU

A subarctic rodent community of Clethrionomys gapperi and Peromyscus maniculatus was censused with multiple-capture traps in contrasting years of population growth. Clethrionomys gapperi .... mature females were territorial and were mainly caught with mature males. Mature males had large, extensively overlapping ranges and were mainly caught with mature voles. Immatures had small, moderately exclusive ranges and were involved in more multiple captures than were mature voles. Patterns of association in C. gapperi were random. Peromyscus maniculatus .... Except for mature males, most animals had extensively overlapping ranges. The basic social unit consisted of a mature male, a few mature females, and a number of young. Numerical changes were principally related to variation in juvenile survival and winter mortality. ... Variation in the frequency of multiple captures was indicative of spatial organization and social structure, and was not related to demographic changes. (Au)

I-68411
International caribou ... the argument is not over
/ Hunter, C.M.
(Alaska, v. 47, no. 6, June 1981, p. 22
ill., map)
ACU

This article discusses the proposed international treaty aimed at protecting the caribou, other wildlife, and, in the long run, the culture and lifestyle of indigenous peoples in northern Alaska and the Yukon. The author presents the obstacles which appear, at this moment, to have stalled any further negotiations between Canada and the U.S. (ASTIS)

I-68640
Waterbird migration near the Yukon and Alaskan
coast of the Beaufort Sea : I. Timing, routes
and numbers in spring / Richardson, W.J.
Johnson, S.R.
(Arctic, v. 34, no. 2, June 1981, p. 108-121,
figures, tables)
References.
ACU, NFSMO

Radars, systematic visual observations from the coast, and aerial surveys were used to study migration near the Yukon (1975) and Alaskan (1977-78) coasts of the Beaufort Sea. Conspicuous eastward migration of loons, brant, seaducks, jaegers and glaucous gulls occurs along the icebound coast, and in the Yukon some eastbound species (especially brant) concentrate coastally. Overall, however, eastward migration is predominantly broad-front with little coastal concentration. ... Westward migration is much less conspicuous visually .... However, radar shows extensive broad-front westward flights, probably largely of shorebirds. Most spring migration, both east and west, is from 15 May to 20 June, with the coastal peak (25 May-15 June) apparently being later than that offshore. ... Some waterbirds bypass the largely ice-covered Alaskan Beaufort by flying northeast across interior Alaska and/or northwestern Canada from the Pacific ocean to the Canadian Arctic. ... (Au)

I-68713
Population increase of muskoxen on Banks Island
and implications for competition with Peary
caribou / Vincent, D. Gunn, A.
(Arctic, v. 34, no. 2, June 1981, p. 175-179,
map, tables)
References.
ACU, NFSMO

Surveys were flown in March 1979 and 1980 north and south of 73 deg. N on Banks Island to estimate numbers of muskoxen. Observed total was 11809 animals and estimated population was 18328 muskoxen, suggesting that the population has continued to expand since previous surveys in the early 1970s. A comparison with previous surveys of densities between the north and the south of the island indicates muskoxen have spread from the Thomsen River valley to the northeast and the south. Comparisons with muskox and caribou populations in Alaska and with reindeer in Greenland suggest that co-existence between these species is normal and does not involve competition. (Au)

I-68721
Behavioral response of Barren Ground caribou to a
moving vehicle / Horejsi, B.L.
(Arctic, v. 34, no. 2, June 1981, p. 180-185,
tables)
References.
ACU, NFSMO

Behavioral responses of individual Barren Ground caribou ... to a 3/4-ton pickup truck were quantified on 36 occasions. ... Forty-eight percent of the individual caribou reacted to the vehicle by running away while 38% trotted away. ... Caribou encountering a moving vehicle exhibited signs of excitement and fright, including the excitation jump and tail-up response. Reversal of direction and/or splitting of the group involved 29% of the individual caribou. The type of habitat (forested vs. open) did not have an effect on observation duration (p>0.50) or on the mean distance at which caribou were first encountered (p>0.50). The distance from the vehicle at which animals began to flee did not differ between sexes (p>0.50) or habitats (p>0.50) but was as great for both sexes as that reported for females with young calves. In forested habitat male caribou allowed a much closer approach than females (p=0.08) but closeness of approach did not differ between the sexes in open habitat (p>0.50). (Au)

I-69906
Caribou and muskoxen on Victoria Island, N.W.T. /
Jakimchuk (R.D.) Management Associates Ltd.
Jakimchuk, R.D. Carruthers, D.R. Polar Gas
Limited.
[Toronto : Polar Gas], 1980.
ix, 93p. : figures (part. fold.), col. plates,
tables ; 28cm.
(Environmental program - Polar Gas Limited)
Prepared for Polar Gas Project.
Appendices.
References.
ACU, JON

The first systematic aerial survey of large mammals on Victoria Island was conducted during August 1980. Caribou numbers were estimated to be 7,936 +- 1,839 (p <.05). Muskox numbers were estimated to be 12,160 +- 2,890 (p <.05). The majority of caribou (74.2%) and muskoxen (78.5%) were found on the northern and western portion of Victoria Island .... The overall objective of the 1980 program was to obtain preliminary information on the seasonal distributions, numbers and movements of large mammal populations and to fill information gaps or obtain updated information for assessing potential environmental impacts. ... (Au)

I-69973
Chitty's hypothesis and behaviour in subarctic red-backed voles Clethrionomys gapperi / Mihok, S.
(Oikos, v. 36, no. 3, 1981, p. 281-295, ill., figures, tables)
References.
ACU

Behavioural relations in Clethrionomys gapperi were studied in "peak" and "decline" years as a partial test to Chitty's polymorphic behaviour hypothesis. Behaviour was related to sex, age, and sexual maturity, and was consistent with a dominance hierarchy that favoured mature females over immatures of both sexes and mature males. Dominant voles selectively occupied preferred habitat, but they did not consistently differ from subordinate voles in individual attributes. This social structure appeared to be an adaptation to suboptimal subarctic conditions that favoured selection for maximal reproductive output. Behavioural changes associated with declining population density were contrary to Chitty's original prediction. High density selected for "docile" as opposed to "aggressive" types in some population categories. These results suggest a need for further study of behaviour, seasonal generations, and dispersal in microtine populations. (Au)

I-70050
Nests of Dolichovespula albida from the Arctic Canada (Hymenoptera : Vespidae) / Yamane, S. Makino, S. Toda, M.J.
(Low temperature science. Series B. Biological science, v. 38, 1980, p. 61-68, figures, tables)
(Contribution. Series B - Hokkaido. University, Sapporo. Institute of Low Temperature Science, no. 2304, 1980)
References.
ACU

Two thriving nests of Dolichovespula albida were collected from the Arctic Canada in the summer of 1980. They were found each in "supraterrestrial" nest sites. The envelope paper was loose in texture, showing a close resemblance to that of D. norwegica. Both nests had only two (one worker and one reproductive) combs and about 170 cells, much smaller than in other Dolichovespula species in temperate regions. Adult productivity was also considerably low, but the colonies did have a good number of workers. (Au)

I-73091
Spring migration of bowhead (Balaena mysticetus) and white whales (Delphinapterus leucas) in the Beaufort Sea / F.F. Slaney & Company. Fraker, M.A.
Winnipeg, Manitoba : Fisheries and Marine Service, 1979.
vi, 36p. : figures, tables ; 28cm.
(Technical report - Canada. Fisheries and Marine Service, no. 859)
(Technical report - Canada. Fisheries and Marine Service. Western Region, no. 121)
References.
ACU

Information concerning the route, timing, and other details of the spring migration of bowhead and white whales in the Beaufort Sea is [given]. ... (Au)

I-76554
Twinning and postpartum activity in barren-ground caribou (Rangifer tarandus) / McDonald, E.J. Martell, A.M.
(Canadian field-naturalist, v. 95, no. 3, July-Sept. 1981, p. 354-355)
References.
ACU

On 26 May 1980 twin Caribou calves ... were observed on the calving grounds of the Porcupine Caribou herd in the northern Yukon Territory. Postpartum activity of one of the twins was delayed relative to that of the other twin and to that of a single calf born at the same time. (Au)

I-78921
Muskoxen on Banks Island increasing at unprecedented rate.
[Yellowknife : Northwest Territories Renewable Resources, Wildlife Service], 1981.
2 leaves ; 28cm.
(NWT wildlife notes, no. 1, Apr. 1981)
ACU

Surveys ... have shown an increase ... from an estimated 3,100-3,800 in 1971 to an estimated 18,000-20,000 in 1980. Superior range quality, a lack of natural predators, and the absence of normal die-offs usually caused by weather are believed to have contributed to an unusually high annual rate of increase of 10-20% for the muskox herd .... In response to initiatives by the Inuvialuit, the N.W.T. Wildlife Service has helped to develop a muskox and caribou management plan for Banks Island (now being printed). An interim agreement was signed on March 20, 1981, ... The common objective of the management plan and the interim agreement is to maintain viable populations of both muskox and Peary caribou, considering their biological requirements and also the nutritional and other needs of the Banksianders and other northerners. .. (Au)

I-79456
A new species of Clepsis guenee from the northern Yukon Territory (Lepidoptera : Tortricidae) / Mutuura, A.
(Canadian entomologist, v.112, no. 10, Oct. 1980, p.1071-1073, figures)
References.
ACU

A new species Clepsis (Siclobola) firthana is described from the northern Yukon Territory, Canada. Morphologically this species is closely related to the European C. strigana (Hubner) and the North American C. clemensiana (Fernald). Genitalic characters are given to distinguish C. firthana from the North American C. kearfotti Obraztsov and C. moeschleriana (Wocke) (which have similar markings), and C. clemensiana (Fernald). (Au)

I-79812
Population dynamics of island populations of subarctic Clethrionomys rutilus / Burns, G.B.
(Canadian journal of zoology, v. 59, no. 11, Nov. 1981, p.2115-2122, figures, tables)
References.
ACU

Populations of Clethrionomys rutilus were studied on two islands (Island 2 and Green Island) in the Mackenzie River during the summers of 1976 to 1978. This was done to examine the demographic parameters related to confinement of northern red-backed vole populations on islands. The number of voles on Island 2 in 1977 increased until late June and then remained nearly constant until trapping ceased in late August. On Green Island in 1977 and 1978 and Island 2 in 1978, populations grew all summer and even in August had not reached the densities found during the 1977 high on Island 2. Island 2 in 1977 had an unusually low number of maturing young voles. Higher wounding rates and shorter adjusted range lengths were associated with higher population densities. Although high densities of voles were reached early in the summer of 1977 on Island 2, numbers stopped increasing before the end of the breeding season. Restraint of growth potential was seen in poor maturation of the young and in declining juvenile survival and recruitment of young through summer. (Au)

I-83208
A collection of zooplankton from Tuktoyaktuk Harbour, Northwest Territories / Sutherland, I.
(Canadian journal of zoology, v. 60, no. 3, Mar. 1982, p. 477-480)
References.
ACU

Forty-seven taxa of zooplankton were identified from collections taken during larval fish tows in the Tuktoyaktuk region. The zooplankton fauna consists of three components: a small number of common species characteristic of brackish water and a large number of rare species of either freshwater or marine affinities. Eurytemora gracilicauda Akatova 1949, E. raboti Richard 1897, and E. richingsi Heron & Damkaer 1976 are newly recorded from Canada. (Au)

I-84379
Two new species of Paractinolaimus Meyl, 1957 (Nematoda : Paractinolaimidae) from the Mackenzie and Porcupine river systems, Northwest Territories, Canada / Eveleigh, E.S.
(Canadian journal of zoology, v. 60, no. 2, Feb. 1982, p. 158-164, figures)
References.
ACU

Two new species of dorylaim nematodes, Paractinolaimus spanithelus n. sp. and Paractinolaimus longidrilus n. sp., from aquatic habitats are described and illustrated. The main differential characteristics of P. spanithelus are the small number of widely spaced supplements (12), length of sperms (9-10 micro m), bluntly rounded convex-conoid shape of the male tail, and the number of pairs of caudal papillae in both sexes. Paractinolaimus longidrilus is distinguishable from closely related species by the spicule length (83 micro m), the heavily cuticularized lateral guiding pieces that are broadly rounded distally, the number of pairs of caudal papillae (11) in the male, and the number of submedian ventral papillae (13) in the male. (Au)

I-87122
Digestibility of plants in ruminal fluids of barren-ground caribou / Thomas, D.C. Kroeger, P.
(Arctic, v. 34, no. 4, Dec. 1981, p. 321-324, tables)
References.
ACU, NFSMO

The comparative digestibilities of plants and their rates of digestion in vitro were assessed by fermentation with ruminal fluids obtained from barren-ground caribou ... shot on their winter range in the southern Northwest Territories. There was a near-linear increase in the in vitro, dry-matter disappearance (IVDMD) with fermentation time (30-120 h) for all eight lichen species that we tested. In contrast, IVDMD was essentially maximal after 60 h fermentation for 10 of 11 non-lichen species. The green leaves of Carex rostrata and Equisetum variegatum were the only species with IVDMDs higher than 50% after a 60-63 h fermentation period. The two species of mosses and a liverwort were poorly digested (15-27%). The addition of 63 mg of urea to each tube markedly increased the digestibilities of both species of lichens tested, and that of Vaccinium vitis-idaea, but it lowered the IVDMD of Salix and Betula stems and the green and cured parts of Carex rostrata. The IVDMDs of four lichen species collected on the Canadian Arctic Islands were higher than those of eight terricolous species obtained from the mainland winter range of R.t. groenlandicus. (Au)

I-87831
Life cycle characteristics of northern Peromyscus maniculatus borealis / Millar, J.S.
(Canadian journal of zoology, v. 60, no. 4, Apr. 1982, p. 510-515, tables)
References.
ACU

Life cycle characteristics of northern Peromyscus maniculatus borealis were examined in the laboratory in order to identify specific adaptations to strongly seasonal environmental conditions. Although northern P. m. borealis are demographically K selected, body weight (19.2 g), gestation time (26.3 days for postpartum litters), litter size (5.0), birth weight (1.87 g), age at weaning (21.4 days), weight at weaning (9.26 g), growth rates (0.35 g/day), and energy requirements for lactation (181% increase attributable to five offspring) are all similar to those of other subspecies of P. maniculatus. General demographic conditions do not appear to have been important in the evolution of the life cycle characteristics of P. maniculatus. (Au)

I-89290
Biological overview of the Northwest Passage, Baffin Bay and Davis Strait / LGL Limited, Environmental Research Associates. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1982.
1 v. (various pagings) : ill., tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD08)
References.
ACU

The purpose of the present report is to provide an overview of the biological resources in the Northwest Passage (Viscount Melville Sound through Lancaster Sound), Baffin Bay and Davis Strait (south to 60 degrees N Lat.) sections of the potential transportation route. The scope of the review is restricted to marine and coastal portions of this area. Also, the purpose of the review is to describe the characteristics of the major biological components in this area; this document does not evaluate the potential impacts of the transportation plan on the biological system. This report is based entirely on published and unpublished literature and reports, ... No original field research has been conducted as part of this project. ... (Au)

I-89303
Biological overview of the Beaufort Sea and NE Chukchi Sea / LGL Limited, Environmental Research Associates. ESL Environmental Sciences Limited. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1982.
xiii, [356] p. : ill., tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD11)
References.
ACU

Full-scale development of oil and gas reserves in the Canadian Beaufort Sea will be a major industrial undertaking with definite implications for the biological and physical environment. In addition, transportation of oil and gas from the Beaufort Sea to distant markets greatly expands the potential zone of influence of the project. As the first step in the process of evaluating the environmental implications of such a project, Dome Petroleum Ltd. has commissioned a series of background studies to document the resources of the areas that might be affected by developmental activities. The purpose of the present report is to provide an overview of the biological resources of the Beaufort and northeastern Chukchi seas. (Au)

I-89478
The distribution and abundance of seals in the eastern Beaufort Sea, 1974-79 / Stirling, I. Kingsley, M. Calvert, W.
Ottawa : Canadian Wildlife Service, 1982.
25 p. : ill., tables ; 28 cm.
(Occasional paper - Canada. Wildlife Service, no. 47)
ISBN 0-662-12016-7
References.
ACU

Between 1974 and 1975, there was a drop of about 50% in the numbers of ringed and bearded seals in the eastern Beaufort Sea, followed by a further 2 years of low numbers after which, in 1978, the population more than doubled. The decline in numbers appeared to be associated with particularly heavy ice conditions in the winter of 1973-74, which may have reduced the food available to seals. The resulting heavy winter mortality, combined with reduced productivity and large-scale emigration, could be responsible for the drop in numbers. Immigration appears to be responsible for the large increase in 1978. ... Ecological conditions in the eastern Beaufort Sea are highly variable and cause changes in the distribution and abundance of ringed and bearded seals. Thus, management of these species as well as assessment of the possible consequences of man-made detrimental effects must be flexible, depending on the status of the populations at the time. (Au)

I-90018
The distribution and abundance of ringed seals in western Coronation Gulf, Prince Albert Sound and Minto Inlet, N.W.T., June 1980 / LGL Limited, Environmental Research Associates. Alliston, W.G. McLaren, M.A. Polar Gas Limited [Sponsor].
[Toronto : Polar Gas], 1981.
v, 37 p. : ill., figures, tables ; 28 cm.
(Environmental program - Polar Gas Limited)
References.
ACU, OON

The most common marine mammal species in this area and hence one of the most likely to interact with the project is the ringed seal (Phoca hispida). This species constitutes a staple food source for coastal Inuit communities ... and is the primary food of the polar bear .... It is the purpose of this study to obtain information concerning the distribution and relative abundance of ringed seals during winter and spring haul-out at submarine pipeline crossings and in bays and inlets where docking and equipment staging sites are being considered. (Au)

I-90026
The distribution, numbers and movement of caribou and muskoxen north of Great Bear Lake, Northwest Territories / Renewable Resources Consulting Services Ltd. Carruthers, D.R. Jakimchuk, R.D. Polar Gas Limited [Sponsor].
[Toronto : Polar Gas], 1981.
x, 144 p. : ill., figures, tables ; 28 cm.
(Environmental program - Polar Gas Limited)
Appendices.
References.
ACU, OON

... This report presents results of part of the 1980/81 Polar Gas Environmental program of land mammal studies. The overall objective of the 1980 program was to obtain preliminary information on the numbers, seasonal distribution and movements of large mammal populations which potentially interact with various route alternatives. Studies were designed to fill information gaps in order to provide a preliminary assessment of potential environmental impacts. ... (Au)

I-90034
Summer bird populations on western Victoria Island, N.W.T., July 1980 / LGL Limited, Environmental Research Associates. McLaren, M.A. Alliston, W.G.
[Toronto : Polar Gas], 1981.
xxiv, 147 p. : ill., tables ; 28 cm.
(Environmental program - Polar Gas Limited)
Appendix.
References.
ACU, OON

... Bird populations on Victoria Island were studied during the 1980 breeding season as part of a series of studies sponsored by Polar Gas to obtain baseline data on wildlife resources in the area of the proposed pipeline and ancillary facilities. This report presents the results of the 1980 studies of breeding birds and is organized as follows: 1. Overview. ...2. Aerial Surveys. ... methodology and results ... 3. Ground Surveys. ... methodology and results ... 4. Species Accounts. Results from both aerial and ground surveys and from casual observations are summarized on a species by species basis. Where possible, our information about the distribution and abundance of each species is compared with the results of previous studies. 5. Species Accounts Summary. Results presented in the Species Accounts section are summarized on a species group basis. (Au)

I-90212
Survey of selected living aquatic resources along the proposed Polar Gas pipeline route on Victoria Island, N.W.T., 1980 / Hatfield Consulting Limited. Williams, G.L. Smith, G.M. Hatfield, C.T. Polar Gas Limited [Sponsor].
[Toronto : Polar Gas], 1981.
vii, 120 p., [5] p. of plates : ill. (some col.), figures, maps, tables ; 28 cm.
(Environmental program - Polar Gas Limited)
Appendices.
References.
ACU, OON

Hatfield Consultants Limited was engaged by Polar Gas to investigate the living aquatic resources along a proposed pipeline across western Victoria Island in the summer of 1980. Investigations focused on important fish species, their more sensitive life history stages, and critical habitats that could be affected by pipeline construction and operation. Field surveys of each crossing site were scheduled to correspond with fish spawning and migrations as much as possible. Water quality measurements were taken at important fish habitat locations along the route. ... Arctic char and lake trout were the dominant fish species captured. ... (Au)

I-91537
The porcupine caribou herd and its range : an
annotated, cross-referenced bibliography /
Canada. Wildlife Service. Kelsall, J.P.
Bisdee, J.
Delta, B.C. : Canadian Wildlife Service, 1980.
231 p. : map ; 28 cm.
ACU

... The Canadian Wildlife Service, Pacific and Yukon Region, undertook the compilation of a systematic review of the state of knowledge of the Porcupine caribou herd, commencing in 1978. As originally conceived, the review was to take the form of an annotated bibliography ... and to include statements of relevant research and investigation currently under way. The topic index was to include ... a brief summary of the current state of knowledge. This document varies from the original plan It does not include a list of current research and investigation, primarily because the field situation is dynamic. ... The other major gaps in this document are statements of current knowledge under major topic headings. Their lack may be partially compensated for by a publication in the Transactions of the 44th North American Wildlife and Natural Resources Conference, which was developed partly as a result of work on this bibliography (Kelsall J.P. and D.R. Klein. The state of knowledge of the Porcupine caribou herd). ... (Au)

I-91545
Aquatic invertebrates from the Smoking Hills,
N.W.T. : effect of pH and metals on mortality /
Havas, M. Hutchinson, T.C.
(Canadian journal of fisheries and aquatic
sciences, v. 39, no. 6, June 1982, p. 890-903,
figures, tables)
References.
ACU

Experiments were conducted on planktonic crustaceans and insect larvae from acidic and alkaline tundra ponds at the Smoking Hills, N.W.T. to determine their tolerance to low pH and elevated levels of potentially toxic elements, including Al. The crustaceans (Daphnia middendorffiana, Diaptomus arcticus, Lepidurus arcticus, Branchinecta paludosa), which are found only in alkaline ponds, died rapidly below pH 4.5. The insect larvae (Orthocladius consobrinus and Limnephilus pallens) from the same alkaline ponds were able to survive for extended periods at pH 3.5, though they do not occur in acidic waters at the Smoking Hills. The red chironomid (Chironomus riparius) is restricted to acidic ponds although it was able to survive not only at pH 2.8, but also in pond water of pH 8.2. Water from an acidic pond (pH 2.8) was markedly more toxic to crustaceans than water from an alkaline pond (pH 8.2) when both were adjusted to pH 4.5. ... Levels reached 20 mg/L Al, and in experiments with Al, additions to the alkaline waters and to the acidic pond waters, after metal removal, caused toxicity to the crustaceans. The absence of crustaceans from acidic ponds at the Smoking Hills may be due to their extreme sensitivity to low pH. ... Metal concentrations in acidic ponds impose an added stress. Aluminum was found to be the key additional factor to that of H+ ion concentration. (Au)

I-91693
Daily activity of drosophilid flies in the arctic
summer / Toda, M.J.
(Low temperature science. Series B. Biological
science, v. 39, 1981, p. 41-44, figures)
References.
ACU

A preliminary record on the daily activity of drosophilid flies in the arctic summer is reported. Two different patterns of daily periodicity are observed, bimodal in Drosophila athabasca and unimodal in D. rellima and D. subquinaria. The former results from the inactivity under the bright light condition in early afternoon, while the latter from the coincidence of the active peak with the daily thermal maximum. The dim light condition around midnight suppresses the activity of all flies. The species-specific requirements for physical environment are deduced from meteorological records at the time of collections. ... A preliminary survey on this subject was made at Inuvik ... in August, 1980. (Au)

I-92177
The 1981 white whale monitoring program, Mackenzie
estuary / LGL Limited, Environmental Research
Associates. Fraker, P.N. Fraker, M.A.
Esso Resources Canada Limited [Sponsor]. Dome
Petroleum Limited [Sponsor]. Gulf Canada
Resources Inc. [Sponsor].
[Calgary : Dome Petroleum Limited], 1982.
vi, 74 p. : figures, tables ; 28 cm.
(Beaufort E.I.S. support document, no.
BEISSD32)
Appendix.
References.
ACU

Vessel traffic and other activities associated with hydrocarbon exploration in the Mackenzie estuary and offshore regions have the potential to adversely affect white whales and Inuit whale hunting. To ensure that negative interactions are minimized, a monitoring program was started in 1972; this is the tenth yearly report and is concerned primarily with activities occurring during the 1981 field season. ... During the ten years of study there have been major variations in the distribution of whales within the estuary. These variations appear to have been primarily the result of the timing of the ice break-up in the two concentration areas relative to the timing of the whale migration. Most of the 1981 field effort focused on Kugmallit Bay -- the area which had most of the industry traffic and which sustained much of the whale harvest. ... The 1981 catch of 149 whales was the largest harvest since 1976 and was well above the nine year average of 131. ... There were five situations in which concerns were expressed about possible industry interference with whales and/or whaling in 1981. ... (Au)

I-93165
Summer (1980) observations of wolf-bison
behavioural interactions in Wood Buffalo
National Park / Carbyn, L.N. Trottier, T.
Oosenbrug, S. Canada. Parks Canada [Sponsor].
Alberta. University. Boreal Institute for
Northern Studies [Sponsor].
[Edmonton] : Canadian Wildlife Service, 1981.
iv, 71 p. : figures, tables ; 28 cm.
(Contribution - Alberta. University. Boreal
Institute for Northern Studies, no. 89)
(Progress report - Canadian Wildlife Service,
no. 4)
Appendices.
ACU

This is the fourth progress report on wolf/bison studies in Wood Buffalo National Park. It includes the data collected from 10 May to 9 September, 1980. ... Results presented in this progress report are largely descriptive and preliminary. The purpose is to present data collected in a specific period which can be incorporated into the final report. The objectives of the 1980 summer studies at Lake One were to study antipredator strategies in bison, with particular reference to the strategy of protecting calves; to document hunting strategies of wolves, document bison use patterns of Lake One and to document some preliminary observations on bison behaviour. The latter information is useful in EAR Process and NRM Process of Parks Canada's resource management programs. (Au)

I-93815
Abundance of seals in the eastern Beaufort Sea, northern Amundsen Gulf, and Prince Albert Sound, 1981 / Kingsley, M.C.S.   Calvert, W.   Stirling, I.   Dome Petroleum Limited [Sponsor].   Esso Resources Canada Limited [Sponsor].   Gulf Canada Resources Inc. [Sponsor].
Edmonton, Alta. : Canadian Wildlife Service, 1982.
v, 19 p. : figures, tables, 28 cm.
References.
ACU

... This survey was undertaken as the beginning of a monitoring study designed to assess whether activities associated with offshore hydrocarbon exploration, in the area most likely to be affected, have a detectable influence on the distribution and abundance of seals. As a result of six years of aerial surveys in the eastern Beaufort Sea, we know that there can be a great deal of variability in the distribution and abundance of seals between years. Thus, it seems that as exploration activities increase in intensity, if a response is shown by the seals, it will be detectable only by surveys which continue for several years. (Au)

I-96210
Dall sheep distribution, abundance and "critical" areas along the proposed Dempster Lateral Pipeline route / Hoefs, M.   Foothills Pipe Lines (Yukon) Ltd. [Sponsor].
Calgary : Foothills Pipe Lines (Yukon) Ltd.
42 p. : ill., maps, tables ; 28 cm.
(Environmental services - Foothills Pipe Lines (Yukon) Ltd.)
Appendices.
References.
ACU

The Yukon Game Branch carried out big game inventory work ... in the Ogilvie Mountains during July, 1978. A cooperative sheep study, between the Yukon Game Branch and the Federal Department of Northern Affairs - Roads and Airstrips Division - was concurrently carried out in the Richardson Mountains .... Because of potential adverse effects of a proposed pipeline route through the area, Foothills Pipe Lines (Yukon) Ltd. agreed to cooperate with these studies by providing financial assistance. ... The terms of reference for this contract work for Foothills specified that sheep distribution, abundance and critical areas like winter ranges, lambing areas and mineral licks were to be identified within a corridor averaging 10 miles in width on either side of the proposed Dempster Lateral Gas Pipeline route. A progress report was submitted on December 31, 1978. This is the final report (June 30, 1979) on this investigation. (Au)

I-96237
The potential impact of the Dempster Lateral Gas Pipeline on grizzly bear and fox in the Mackenzie Delta / Art Pearson & Associates. Pearson, A.M.   Foothills Pipe Lines (Yukon) Ltd. [Sponsor].
Calgary : Foothills Pipe Lines (Yukon) Ltd., 1980.
17 p. : figures, maps (some folded) ; 28 cm.
(Environmental services - Foothills Pipe Lines (Yukon) Ltd.)
References.
ACU

This study was done for Foothills Pipe Lines (Yukon) Ltd. to collate, synthesize and interpret information available on grizzly bear ... and foxes ... in the Mackenzie Delta. Emphasis was placed on interpretation of data relevant to potential impact from and mitigative measures for construction of the Dempster Lateral Gas Pipeline. Information was taken from published reports and supplemented by unpublished data collected by the author and colleagues for the Canadian Wildlife Service and from informal discussions with government officials familiar with the area. ... (Au)

I-96903
Notes on the mammals of the Mackenzie District, Northwest Territories / Banfield, A.W.F.
(Arctic, v. 4, no. 2, Sept. 1951, p. 113-121, ill., map)
ACU

I-98531
Population dynamics of the Mackenzie Delta reindeer herd, 1938-1958 / Krebs, C.J.
(Arctic, v. 14, no. 2, June 1961, p. 91-100, figures, tables)
ACU

I-100544
Overwintering birds observed along the Mackenzie-Great Slave Lake highways / Carbyn, L.N.
(Arctic, v. 21, no. 4, Dec. 1968, p. 294-297, figure, table)
ACU

I-100587
Overwintering of small mammals near Great Slave Lake, northern Canada / Fuller, W.A.   Stebbins, L.L.   Dyke, G.R.
(Arctic, v. 22, no. 1, Mar. 1969, p. 34-55, figures, tables)
ACU

I-101192
Observations of birds and mammals at Bluenose Lake / Kelsall, J.P.
(Arctic, v. 23, no. 3, Sept. 1970, p. 190-196)
ACU

I-101451
Seasonal variations in circadian rhythms of deer mice, in northwestern Canada / Stebbins, L.L.
(Arctic, v. 24, no. 2, June 1971, p. 124-131, figures)
ACU

I-101516
Distribution and abundance of muskoxen north of Great Bear Lake / Kelsall, J.P.   Hawley, V.D.   Thomas, D.C.
(Arctic, v. 24, no. 3, Sept. 1971, p. 157-161, figure, tables)
ACU

I-101974
An albino muskox near the Atkinson Point River, Northwest Territories / Kuyt, E.   Schroeder, C.H.   Brazda, A.R.
(Arctic, v. 25, no. 3, Sept. 1972, p. 239-240, ill.)
ACU

I-106410
Behavior, disturbance responses and feeding of bowhead whales Balaena mysticetus in the Beaufort Sea, 1980-81 / LGL Ecological Research Associates, Inc.   Richardson, W.J. [Editor].   U.S. Bureau of Land Management [Sponsor].
Bryan, Tex. : LGL Ecological Research

Associates, Inc. 1982.
iv, 456 p. : figures, tables ; 28 cm.
Appendices.
References.
Contents: Project rationale, design and summary / W.J. Richardson and M.A. Fraker. - Normal behaviour of bowheads / B. Wursig, C.W. Clark, E.M. Dorsey, M.A. Fraker and R.S. Payne. - Disturbance responses of bowheads / M.A. Fraker, W.J. Richardson and B. Wursig. - Characteristics of waterborne industrial noise / C.R. Greene. - Characteristics of bowhead feeding areas / W.B. Griffiths and R.A. Buchanan.
ACU

The imminence of offshore exploration for oil and gas in the Alaskan part of the Beaufort Sea has raised concerns about the potential for disturbance of bowhead whales. The bowhead ... is a baleen whale inhabiting cold northern waters. Historically, five substantial populations existed: Western Arctic, Davis Strait, Hudson Bay, Okhotsk Sea, and Spitsbergen. The western arctic stock inhabits the Bering, Chukchi and Beaufort Seas off the shores of Alaska, the U.S.S.R., and Canada. All five populations were heavily exploited by commercial whalers, and all are now seriously reduced. Only the western arctic population continues to be of substantial size, yet even it is considered to be rare and endangered under U.S. legislation, in Canada, and by the International Whaling Commission. Until very recently, the size of the western arctic stock was believed to be in the range 2264-2865 individuals ... but the latest estimates are somewhat higher .... (Au)

I-106631
Major range extensions of anadromous salmonids and first record of chinook salmon in the Mackenzie River drainage / McLeod, C.L. O'Neil, J.P.
(Canadian journal of zoology, v. 61, no. 9, Sept. 1983, p.2183-2184)
References.
ACU

Spawning migrations of chum salmon ... and Arctic cisco ... in the Liard River system (Mackenzie River drainage) within the Northwest Territories and British Columbia were documented during the period 1978 to 1981. These species have not been reported previously from the Liard River. The points of capture, as far upstream as the Grand Canyon of the Liard, represent a major southerly range extension in the Mackenzie River drainage and upstream migrations of nearly 2000 km from the Beaufort Sea. The first record of a chinook salmon ... from the Mackenzie River drainage is reported also. The specimen was collected in the Liard River, Northwest Territories, and was probably a stray, accompanying a spawning escapement of chum salmon. (Au)

I-106992
Aerial surveys of bowhead whales and other marine mammals off the Tuktoyaktuk Peninsula, N.W.T., August - September 1980 / LGL Limited, Environmental Research Associates. Renaud, W.E. Davies, R.A. Dome Petroleum Limited [Sponsor].
Toronto, Ont. : LGL Limited, Environmental Research Associates, 1981.
2 microfiches : ill., figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWB01)
Appendices.
References.
ACU

In August and early September 1980, LGL Limited, conducted three aerial surveys of the waters north of Tuktoyaktuk Peninsula for Dome Petroleum Ltd. to assess the use of these waters by bowhead whales, which are recognized internationally as an endangered species. The surveys ... included the future site of the Kuglulik artificial island. They were designed to provide baseline information on the numbers, distributions and movement patterns of bowhead whales in the area before construction of the island began ... [and] on other marine mammals in the area. ... Few (6) bowhead whales were seen in the study area on 6-7 August. However, a major influx of bowheads had occurred by the 21-24 August survey, when an estimated 755 bowheads were present in the study area. ... During the final survey (3-4 September), an estimated 222 bowheads were present in the study area. ... The large numbers and movement patterns recorded in late August were not expected, and may be atypical. It is possible that the seemingly atypical summer distribution pattern may have been associated with the delayed spring migration in 1980. ... [Documentation of populations of other marine mammals is also included]. (Au)

I-107000
1981 waterbird surveys McKinley Bay, Northwest Territories / Environmental Management Associates. Scott-Brown, M. Allen, L. Roe, N.A. Canada. Wildlife Service [Sponsor]. Canada. DIAND [Sponsor]. Dome Petroleum Limited [Sponsor].
[Calgary, Alta. : Environmental Management Associates], 1981.
1 microfiche : figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWB02)
Appendices.
References
ACU

Aerial surveys were conducted on July 21, July 31, and August 10, 1981 at McKinley Bay, Northwest Territories to determine waterfowl distribution, species composition and abundance. Each survey consisted of two parts: a series of ten east-west transects across McKinley Bay and adjacent terrain, and an aerial survey of the shoreline or "shoreline cruise". The 305 square km study area was further divided into marine and terrestrial components, and total bird numbers in each component were extrapolated from the results of aerial transects. A total of 19,136, 7,949 and 13,180 birds were estimated in the marine component on July 21, July 31 and August 10, 1981 respectively. Diving ducks were the most abundant group recorded, with Oldsquaw and scoters accounting for over 80 percent of the species total observed in the marine component. ... Total estimated numbers of birds were lower in the terrestrial component, numbering 3,797, 2,498 and 5,517 on the three respective survey dates. Diving ducks were again the most abundant group recorded, but numbers were substantially lower than in the marine component. ... Compared to similar surveys in 1980, considerably more birds were observed in both components of McKinley Bay during 1981. (Au)

I-107018
The distribution and abundance of ringed and bearded seals in the eastern Beaufort Sea, 1974-1979 / Canada. Wildlife Service. Stirling, I. Kingsley, M.C.S. Calvert, W. Dome Petroleum Limited [Sponsor]. Esso Resources Canada Limited [Sponsor]. Canada. DIAND [Sponsor].
[S.l. : s.n.], 1981.
2 microfiches : figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWB03)
References.
ACU

Between 1974 and 1975, there was a drop of about 50% in the numbers of ringed and bearded seals in the eastern Beaufort Sea, followed by two more years of low numbers, after which, in 1978, the population more than doubled. The decline in numbers appears to be caused by particularly heavy ice conditions in the winter of 1973-74 which may have reduced the food available to seals. This would have caused numbers to drop because of heavy winter mortality combined with reduced productivity and large scale emigration. Immigration appears to be responsible for the large increase in 1978. In terms of environmental assessment, this means that because natural conditions can be quite variable, the consequences of forseeable man-made detrimental effects, such as blow-outs or oil spills, will vary depending on the status and condition of the seal population at the time. Ringed seals prefer water with high ice cover and moderate depth. Bearded seals prefer broken ice areas over shallow water. The greatest densities of ringed seals were recorded in the fast ice along the Yukon coast, around Cape Parry and along the southwest coast of Banks Island. The greatest densities of bearded seals were found in the shallow water areas off the Tuktoyaktuk Peninsula. (Au)

I-107026
The distribution of ringed seals in relation to
winter icebreaking activities near McKinley
Bay, N.W.T., January-June 1980 / LGL Limited,
Environmental Research Associates. Alliston,
W.G.
Toronto, Ont. : LGL Limited, Environmental
Research Associates, 1980.
2 microfiches : figures, plates, tables ; 11 x
15 cm.
(Beaufort E.I.S. reference work, no. RWB04)
Appendices.
References.
ACU

The purpose of this study was to determine the possible influences of winter icebreaking activity in the landfast ice off McKinley Bay, Tuktoyaktuk Peninsula, upon the distribution of ringed seals during winter and the spring haul-out period. The study area consisted of a experimental area (extending 25 km along the coast) where icebreaking had taken place during January and March 1980, and an adjacent control area (extending 40 km west of the experimental area). Data were collected during two aerial surveys conducted in mid-June. ... Comparison of the experimental area with the control area indicated no differences in breathing hole densities and hence winter use of the two areas by seals. ... Data from transect segments of one-minute duration were used to make comparisons within the experimental area of segments where icebreaking had and had not occurred. ... Within the experimental area, both wintering and hauled-out seals exhibited an apparent preference for areas in which some icebreaking had occurred. No cause-effect relationship could be established, although there was some suggestion that the icebreaker track may have contained higher densities of breathing holes than the surrounding unbroken ice. It was concluded that no negative influence on the distribution of wintering and hauled-out seals could be attributed to the limited icebreaking activities conducted in 1980. (Au)

I-107034
Survey of fish populations in Kugmallit Bay and
Tuktoyaktuk Harbour, Northwest Territories /
Dobrocky Seatech Limited. Byers, S.C.
Kashino, R.K. Dome Petroleum Limited
[Sponsor].
[S.l.] : Dobrocky Seatech Limited, 1980.
2 microfiches : figures, plates, tables ; 11 x
15 cm.
(Beaufort E.I.S. reference work, no. RWB05)
Appendix.
References.
ACU

During August and September 1980, a survey of resident fish populations in Kugmallit Bay, N.W.T. was conducted. ... The purpose of this survey was to satisfy the requirements of ocean dumping permit #4443-0990, Kugmallit Bay approach channel to Tuktoyaktuk Harbour. ... Our objective was to obtain information on the fish populations outside the Harbour in Kugmallit Bay, particularly the nearshore - offshore habits of migratory fish in the vicinity of the approach channel to Tuktoyaktuk Harbour. Since no dredging occurred during the study period, this report in essence can be considered a pre-dredging survey. Two additional studies done ... inside Tuktoyaktuk Harbour are also presented in this report. One represents a study conducted at the dredge site immediately south of the Canmar loading dock, during and after dredging activities. A second shorter project, involved sampling at three proposed dredge borrow-source sites. (Au)

I-107042
Sea-bird surveys in the Beaufort Sea, Amundsen
Gulf, Prince of Wales Strait and Viscount
Melville Sound - 1980 season / Barry, T.W.
Barry, S.J. Jacobson, B.
[S.l. : s.n.], 1981.
2 microfiches : ill., maps, tables ; 11 x 15
cm.
(Beaufort E.I.S. reference work, no. RWB06)
Appendices.
References.
ACU

Seven surveys of birds associated with marine and coastal areas of the Beaufort Sea, Amundsen Gulf, Prince of Wales Strait and Viscount Melville Sound were flown during June through September 1980. The purpose of the surveys was to determine times and places that are important to sea-birds during the migration, nesting, molting, brood rearing and fall staging phases of their life cycles. The habitat used by marine or sea-birds was rated according to its sensitivity to environmental impact. Estimates of the portion of species population that might be affected by possible "developmental accidents" etc. are made by various concentration points. (Au)

I-107077
A review of the wildlife and marine resources of
the Cape Parry region in relation to a fuel
staging area for sea vessels near Cape Parry,
N.W.T. / LGL Limited, Environmental Research
Associates. Fraker, M.A. Griffiths, W.B.
Ward, J.G. Dome Petroleum Limited [Sponsor].
Vancouver, B.C. : LGL Limited, 1979.
2 microfiches : figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWE01)
References.
ACU

Canadian Marine Drilling Ltd. presently has a one year land use permit to construct a fuel staging area for sea vessels at Summer's Harbour on Booth Island. ... Recent investigations ... indicate that Wise Bay ... may also be a suitable location for the fuel staging area. ... The construction of the fuel staging facility, as described ... would require an extension to the present permit. Before a further land-use permit for a fuel tank farm at either Summer's Harbour or Wise Bay can be issued, an Initial Environmental Evaluation (IEE) must be submitted to the Department of Indian Affairs and Northern Development. This report is intended to form part of the IEE and deals with the wildlife and marine resources of the Cape Parry region. The specific objectives of this report are: 1. to summarize the available information on the abundance and distribution of wildlife and marine resources in the area; 2. to summarize the available information on human utilization of these wildlife and marine resources; 3. to identify the potential impacts of the development on the wildlife and marine resources and their use; 4. to identify mitigative procedures that will eliminate or reduce the potential impacts; and 5. to describe planned research for 1979 that will fill gaps in the information about wildlife and marine resources in the area. (Au)

I-107670
Seasonal ranges of Dall's sheep, Mackenzie Mountains, Northwest Territories / Simmons, N.M.
(Arctic, v. 35, no. 4, Dec. 1982, p. 512-518, figures)
References.
ACU, NFSMO

The seasonal distribution of marked Dall's sheep in the Mackenzie Mountains was studied during 1968 through 1974 as part of a broader Canadian Wildlife Service project that included research into population dynamics and hunter kill statistics. Dyes were used to mark 247 sheep, and 118 were marked with collars, ear tags, and ear streamers. Aerial observations of sheep and their winter tracks were the basis for maps of seasonal ranges. Summer ranges were a 30-90% expansion of winter ranges within mountain blocks that were bounded by forests and stream valleys. Within the study areas, these mountain blocks served as year-long habitat for most members of family groups of ewes and juveniles. Winter ranges were characterized by shallow, lightly crusted or uncrusted granular snow that did not impede travel or seriously constrict feeding areas. A few sheep wintered in forests near river banks. During summers, mineral licks dictated the shape of family group ranges, as well as the length and patterns of their daily and seasonal movements. (Au)

I-107689
Bowhead whale distribution in the southeastern Beaufort Sea and Amundsen Gulf, summer 1979 / Hazard, K.W. Cubbage, J.C.
(Arctic, v. 35, no. 4, Dec. 1982, p. 519-523, figures, table)
References.
ACU, NFSMO

The distribution of bowhead whales in the southeastern Beaufort Sea and Amundsen Gulf was determined from observations aboard commercial resupply vessels. Fifty-four to sixty-two whale sightings were recorded on the 2150 km (1160) nm) of transects. Distribution of whale sightings along transects was clumped The proportion of whales seen near ice was significantly greater than the proportion of transect surveyed near ice. Our observations and interviews indicate that bowheads are seen over a period of several weeks in many areas where they are seen annually. Both the locations and seasonality of whale occurrence appear similar to distribution patterns extracted from sightings of nearly a century ago. (Au)

I-107751
The 1980 whale monitoring program, Mackenzie estuary / LGL Limited, Environmental Research Associates. Fraker, P.N. Fraker, M.A. Esso Resources Canada Limited [Sponsor].
Sidney, B.C. : LGL Ltd., 1981.
2 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB12)
Appendices.
References.
ACU

... The overall purpose of the whale monitoring program is to prevent serious adverse interactions between Esso's operations and whales and Inuit whale hunting activities. To do this, information about whale activities and responses to industrial operations has been collected over several years. This information has assisted with planning, and in some instances on-location advice has been provided to prevent or minimize potentially adverse effects. Specific objectives of the study were: 1: to determine the timing of use of the estuary by white whales and to assess the effects of spring break-up of the landfast ice on patterns of use; 2. to assess the numbers of white whales using the estuary; 3. to determine the distribution and movement patterns of white whales in various parts of the estuary; 4. to observe the behaviour of white whales and their responses to Inuit hunting; 5. to gather information on the status of the Mackenzie white whale stock by taking biological samples from whales landad during the Inuit hunt; 6. to document the occurrence, movements, and activities of bowhead whales in the Mackenzie estuary region; and 7. to document and describe the behaviour of both bowhead and white whales in response to various offshore industrial activities. (Au)

I-107760
Survey of benthic macroinvertebrate and fish populations in the Mackenzie River at Norman Wells, N.W.T., September 1980 / Envirocon Limited. Esso Resources Canada Limited [Sponsor].
Calgary, Alta. : Envirocon Ltd., 1980.
1 microfiche : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB13)
Appendix.
References.
ACU

Esso Resources Canada Limited is planning to increase the production of crude oil from the Norman Wells oilfield. The proposed expansion ... will require, among other facilities, the construction of six artificial islands in the Mackenzie River. ... In order to gather site-specific information on the potential impact of artificial island and water intake construction in the Mackenzie River, samples of the benthic macroinvertebrate and shallow water fish populations were collected in September 1980. Examination of these preliminary data will make it possible to formulate qualitative conclusions about the effects of construction on invertebrates and fish habitat. ... (Au)

I-107778
Norman Wells goose survey May, 1980 / Webb (R.) Environmental Services Limited. Esso Resources Canada Limited [Sponsor].
Calgary, Alta. : R. Webb Environmental Services Ltd., 1980.
2 microfiches : ill., figure, maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB15)
Appendices.
References.
ACU

Esso Resources Canada Limited is proposing to increase oil production at Norman Wells, N.W.T. ... The project Environmental Impact Statement (Esso Canada Resources Limited, 1980) identified a potential for interaction between migrating snow geese and construction and operating phases of oilfield expansion. Studied in 1972 and 1973 as part of planning for possible natural gas pipeline construction, more specific and current information was required for this project. A waterfowl "migration watch" was established to provide that information. The purpose of the migration watch was to determine numbers, distribution and activity of waterfowl, particularly snow geese, in the vicinity of Bear and Goose islands during the early spring of 1980. (Au)

I-107786
White whale - offshore exploration acoustic study / F.F. Slaney & Company. Ford, J. Imperial Oil Limited [Sponsor].
Vancouver, B.C. : F.F. Slaney & Company Ltd., 1977.
1 microfiche : figures, maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB16)
Appendices.
References.
ACU

The specific objectives of this study were to: (1) Record and analyse underwater sounds resulting from island-building activities in order to ascertain their frequency and sound pressure level characteristics at various distances from their source. (2) Record the underwater vocalizations of white whales, and analyse them with respect to physical structure and probable function. (3) Compare the frequency spectra and pressure levels of construction activity sounds to whale vocalizations in order to identify those sounds which could physically interfere with white whale acoustic signalling, and, (4) Compare construction activity sound levels with auditory thresholds in another odontocete species in order to estimate distances at which those sounds could potentially be perceived by white whales. ... Underwater sounds originating from I.O.L. exploration activities ... potentially ... could affect white whales by physically obscuring a certain proportion of their underwater acoustic signals ..., possibly resulting in avoidance of some areas or the temporary blockage of travel routes. Similar avoidance reactions could also be created by the presence of sounds which the whales might find unfamiliar or annoying. ... The major interpretations and speculations about the effects of industrial sounds on whales are based on limited data and should be considered tentative. For this reason further field studies are suggested. ... (Au)

I-107794
Wildlife observations during dredging operations in McKinley Bay, July - August 1980 / Dome Petroleum Limited. Ward, J.G.
Calgary, Alta. : Dome Petroleum Ltd., 1981.
2 microfiches : ill., figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB17)
Appendices.
References.
ACU

... a monitoring program was carried out to obtain information that would permit an assessment of the effects of the dredging operation on the use of McKinley Bay by birds in 1980. ... Monitoring was carried out during three sessions: July 20-24, August 5-13, and August 26-September 1. Two species of marine mammals and 26 species of birds were recorded in the general vicinity of the dredging operations. ... In conclusion, there were no indications that dredging activities in McKinley Bay in 1980 altered the abundance of birds using the bay, and any affects that dredging activities may have had on the behaviour and distribution of birds were considered to be minor in nature. Apart from an accidental bird collision, dredging activities did not cause any known mortality to birds or mammals. (Au)

I-107816
Underwater vocalizations as a tool for studying the distribution and relative abundance of wintering pinnipeds in the High Arctic / Canada. Wildlife Service. Stirling, I. Cleator, H. Calvert, W. Arctic Pilot Project (Canada) [Sponsor]. Dome Petroleum Limited [Sponsor]. Esso Resources Canada Limited [Sponsor].
[Edmonton, Alta. : Canadian Wildlife Service], 1982.
2 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB19)
Paper copy also available.
Appendix.
References.
ACU

Recordings of the underwater vocalizations of ringed seals, bearded seals and walruses were made in the High Arctic between late March and late June 1980 and 1981. This was done to evaluate the potential for using sub-ice vocalizations as a tool for studying the distribution and relative abundance of wintering pinnipeds in the High Arctic. We were able to identify many of the calls made by these 3 species and an initial lexicon is presented. Several preliminary results are discussed. Ringed seal vocalizations were more frequent in late April than earlier in the season or in late June, whereas the highest vocalization rates recorded for bearded seals were in late June. Vocalization rates of all 3 species were indicative of their distribution and relative abundance in different areas and sea ice habitat types. Recommendations are made of points to be considered if the subject is researched further. (Au)

I-107824
Wildlife observations made in September 1979 on the icebreaker Canmar Kigoriak between Saint John, N.B. and Tuktoyaktuk, N.W.T. / MacLaren Marex Inc. Dome Petroleum Limited [Sponsor].
St. John's, Nfld. : MacLaren Marex Inc., 1979.
2 microfiches : ill., figures ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB20)
Appendix.
References.
ACU

In 1979, an experimental Class 4 icebreaker was built by Dome Petroleum and Canmar Ltd. for service in the Beaufort Sea. On completion in September, this vessel sailed from New Brunswick to the Beaufort Sea, by way of the Northwest Passage .... This route approximately corresponds to that proposed for an icebreaking tanker route to be developed in the 1980's. The following report describes the distribution and relative abundances of marine birds and mammals observed from the vessel during this voyage. (Au)

I-107832
Habitat preferences and distribution of polar bears in the western Canadian Arctic / Stirling, I. Andriashek, D. Calvert, W. Dome Petroleum Limited [Sponsor]. Esso Resources Canada Limited [Sponsor]. Canada. Wildlife Service [Sponsor].
[S.l. : s.n.], 1981.
1 microfiche : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB21)
References.
ACU

This report analyzes and discusses polar bear distribution and habitat data that were collected from October 1970 through May 1979 during population ecology studies in the Western Canadian Arctic. Most of the data were collected between mid March and the end of May of each year. However, some data collected during the summer and fall are also used. Seven sea ice habitat types are included in the evaluation but only three are important to polar bears in the study area: Type 1, stable fast ice with deep snow drifts along the pressure ridges; Type 3, the floe edge, and Type 4, areas of moving ice with 7/8 or more ice cover. ... Adult males show a strong preference for Types 3 and 4 over Type 1 [as do subadult males, but to a lesser degree]. Adult females with cubs of the year showed a marked preference for Type 1 .... Subadult females also preferred Type 1, but lone females and females with older cubs showed no preference. ... The polar bears of the mainland coast, but not Banks Island, constitute part of a population shared by Alaska. ... most proposed drilling and production activities will be taking place along the mainland coast north of the Mackenzie Delta and Tuktoyaktuk Peninsula. Thus, it seems likely that any detrimental effects (eg. oil spills, noise, attraction to camps, increased hunting, etc.) will be felt by polar bears along the mainland coast which are, to some degree, an internationally shared population. ... If shipping occurs through the Cape Bathurst polynya and northern Amundsen Gulf, ship disturbance and oil spills may detrimentally impact that portion of the polar bear population which is associated with the western and southern coasts of Banks Island. (Au)

I-107840
Systematic aerial surveys of bowhead whales and other marine mammals in the southeastern Beaufort Sea, August-September 1982 / ESL Environmental Sciences Limited. Harwood, L.A. Ford, J.K.B. Dome Petroleum Limited [Sponsor]. Gulf Canada Resources Inc. [Sponsor].
Sidney, B.C. : ESL Environmental Sciences Ltd., 1983.
2 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB22)
Appendices.
References.
ACU

Systematic aerial surveys were conducted in the southeastern Beaufort Sea during August 18-24, 1982 and September 5-13, 1982 to examine the relative abundance and distribution of bowhead whales. Additional information collected during the surveys included data on bowhead calf production, movements and behaviour, and data on the relative abundance, distribution and behaviour of white whales, ringed seals and bearded seals. ... Observers recorded a total of 81 bowhead whales during late August, and a total of 102 during early September. ... Most bowheads recorded during both surveys were located in the Yukon Zone .... Estimated numbers of bowheads present during the early September survey were 1112, 163 and 115 in the Yukon, Delta and Tuk Pen zones, respectively. ... The results of the present investigation and past studies in the region indicate that the distribution of bowheads in the southeastern Beaufort Sea varies among years. [and] ... also ... that the late summer distribution of bowheads may be related to natural factors such as ice conditions and/or food availability. ... white whales ... were located primarily in shallow water (<20 m) areas offshore of the Mackenzie Delta and Tuktoyaktuk Peninsula. ... The lack of white whale sightings in nearshore waters of the Yukon Zone suggest that fall migration of this species probably occurred offshore. ... Ringed seals were observed in most areas surveyed during periods of calm seas, suggesting they were widely distributed throughout much of the region during the open water season. ... bearded seals were not observed during all surveys conducted during periods of calm seas. Bearded seals were sighted more frequently in the Tuk Pen Zone than in either the Delta or Yukon zones, but their overall abundance in the latter area was also relatively low and their distribution patchy. ... (Au)

I-107859
Bird and mammal surveys in the Cape Parry area, Northwest Territories, June-August 1979 / LGL Limited, Environmental Research Associates. Ward, J.G. Dome Petroleum Limited [Sponsor].
Edmonton, Alta. : LGL Ltd., 1979.
1 microfiche : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB23)
Appendices.
References.
ACU

... The general objectives of these surveys were the following: 1. to obtain site-specific information on the abundance and distribution of birds and mammals in the general Cape Parry area, and 2. to obtain quantitative information on the abundance and distribution of birds and mammals in the general Cape Parry area, 3. to determine whether any major bird or mammal features of the Cape Parry area were not included in the environmental evaluation. This report presents and discusses the results of these studies. (Au)

I-107867
1981 waterbird surveys McKinley Bay, Northwest Territories / Environmental Management Associates. Scott-Brown, M. Roe, N.A. Allen, L. Canada. Wildlife Service [Sponsor]. Canada. DIAND [Sponsor]. Dome Petroleum Limited [Sponsor].
Calgary, Alta. : Environmental Management Associates, 1981.
1 microfiche : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB24)
Appendices.
References.
ACU

Aerial surveys were conducted on July 21, July 31, and August 10, 1981 at McKinley Bay, Northwest Territories to determine waterfowl distribution, species composition and abundance. Each survey consisted of two parts: a series of ten east-west transects across McKinley Bay and adjacent terrain, and an aerial survey of the shoreline or "shoreline cruise". The 305 square km study was further divided into marine and terrestrial components, and total bird numbers in each component were extrapolated from the results of aerial transects. A total of 19,136, 7,949, and 13,180 birds were estimated in the marine component .... Diving ducks were the most abundant group recorded, with Oldsquaw and scoters accounting for over 80 percent of the species total observed in the marine component. ... Total estimated numbers of birds were lower in the terrestrial component, numbering 3,797, 2,498 and 5,517 on the three respective survey dates. Diving ducks were again the most abundant group recorded .... Swans were common in the lagoon system at the southeast end of McKinley Bay, with an estimated 269 birds present on July 21. Numbers of Brant and White-fronted Geese increased over the study period, and these species were most commonly observed in small embayments adjacent to Atkinson Point and the lagoon system. ... (Au)

I-107875
The biological resources of the southeastern Beaufort Sea, Amundsen Gulf, northern Mackenzie Delta and adjacent coastal areas : a selected annotated bibliography / LGL Limited, Environmental Research Associates. Esso Resources Canada Limited [Sponsor]. Dome Petroleum Limited [Sponsor]. Gulf Canada Resources Inc. [Sponsor]. Petro-Canada [Sponsor]. Shell Canada Limited [Sponsor].

Edmonton, Alta. : LGL Ltd., 1982.
12 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB25)
(APOA project no. 173 : Ecology of the southern Beaufort Sea and Mackenzie River Delta : an annotated bibliography. Report)
Paper copy also available.
Available both as an APOA project report and Beaufort E.I.S. reference work; the APOA project report was published by Arctic Petroleum Operators Association, Calgary.
This annotated bibliography also contains a key word index, author index and geographical index.
ACU, NFSMO

... The present study was conducted to review the literature pertaining to the various biological studies that have been conducted in the area and to annotate the reports of those studies that are pertinent to the needs of impact assessment. The specific objectives of the present study are the following: 1. to prepare a selected annotated bibliography of the published and unpublished ecological information that will aid in the identification of potential biological impacts from oil and gas development in the Canadian Beaufort Sea, Amundsen Gulf and northern Mackenzie Delta, and 2. to summarize the relevant information for each biological topic in the bibliography. The emphasis of the bibliography is on aquatic biology. ... The biological publications have been annotated under seven major topics - - Mammals, Birds, Fish, Zoobenthos, Zooplankton, Ice Biota, and Primary Production (including nutrient supplies and regeneration, bacterial activities, and phytoplankton distribution). Map series that depict the distributions of various biological resources are annotated under the topic Atlases, and a number of multi-disciplinary impact-related studies are annotated under the topic Impact Studies. (Au)

I-108049
Tuft Point and adjacent coastal areas fisheries project / Aquatic Environments Limited.
Jones, M.A. Beste, J.D. Imperial Oil Limited [Sponsor].
Calgary, Alta. : Aquatic Environments Ltd., 1977.
3 microfiches : ill., figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB14)
References.
ACU

... The purpose of this study was to: (1) determine the species composition and relative abundance of fish within the study area; (2) identify important fish habitat zones; (3) determine species composition, standing crop, and diversity of benthic macroinvertebrate and plankton communities; (4) determine the food habits of the fish species present in the study area; (5) conduct basic life history analyses of the major fish species present; (6) use the baseline data thus obtained to: a) assess the effects of present and future Imperial Oil borrow operations upon fish populations in the area; b) form the basis for recommendations to mitigate any effects and for guidelines to be used in planning future borrow sites. The general conclusions of the study are: 1. Tuft Point coastal waters support a relatively abundant and diverse fish fauna (16 species). The region is of particular importance as a rearing area for the juveniles of anadromous species such as ciscoes, whitefish, and inconnu. 2. The most important fish habitat zones are the near-shore shallows including bays and lagoons and the entrance areas of bays and lagoons. ... 3. Invertebrates are relatively abundant and diverse wherever organic mud and debris can be found (39 species) ... 4. ... the phytoplankton communities in the Tuft Point area are relatively abundant and diverse (36 species phytoplankton). Zooplankton (33 species) appear to be less abundant in the Tuft Point than in other areas of the Beaufort Sea. 5. Present Imperial Oil dredging operations in the Tuft Point area are having little or no effect upon fish, invertebrate, or plankton populations. 6. The dredging site is far enough offshore to be outside of the most important fish habitat zones. The substrate being dredged is mostly clean sand where invertebrate densities are very low and the slight increases in turbidity levels in the immediate vicinity of the dredge site are unlikely to affect fish, invertebrates, or plankton significantly. ... (Au)

I-108073
1973-1974 winter benthic and oceanographic surveys offshore Mackenzie Delta, N.W.T. / F.F. Slaney & Company. Imperial Oil Limited [Sponsor].
Vancouver, B.C. : F.F. Slaney and Co. Ltd., 1974.
2 microfiches : ill., figures, maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE12)
Appendices.
References.
ACU

... This study was conducted for I.O.L. in late winter, 1973 and 1974, to provide data on winter conditions within the estuarine environment as an aid to identifying environmental concerns and predicting possible impact. ... Specific objectives of the program were to: 1. Sample the winter benthic faunal communities in various sectors of the estuary. 2. Determine certain physical and chemical parameters of any free water. 3. Collect substrate samples from the uppermost layer. (Au)

I-108081
Preliminary assessment, aquatic resources Tuktoyaktuk Harbour / F.F. Slaney & Company.
Imperial Oil Limited [Sponsor].
Vancouver, B.C. : F.F. Slaney & Co. Ltd., 1973.
1 microfiche : maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE13)
References.
ACU

... The objective of this survey was to obtain comparative data of a preliminary nature. Specific goals were to: 1. Determine the presence or absence of fishes and invertebrate fauna at the potential borrow areas. 2. Determine some primary physical and biological attributes of fish habitats at those sites. 3. Derive a preliminary assessment of the importance of certain fish species to the local people. (Au)

I-108111
A benthic survey of a potential gravel deposit near Banks Island, N.W.T. / Arctic Laboratories Limited. Heath, W.A. Thomas, D.J. Koleba, J.M. Perry, B.M. Ethier, A.G. Maclauchlan, L. Dome Petroleum Limited [Sponsor].
Inuvik, N.W.T. : Arctic Laboratories Ltd., 1982.
2 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE19)
Appendix.
References.
ACU

Near the southwest coast of Banks Island ... a survey of the benthos was conducted by diving biologists on a potential gravel deposit. The purpose of the survey was to describe the types and distributions of benthos, and their community associations in the gravel area prior to a proposed dredging program. Sampling stations ranged from 3.3 to 18.2 m in depth. ... Shallow trenches which had been ploughed in the bottom by grounding ice were evident at four stations. ... The benthos from bottom samples were identified only to the family level .... A total of 96 families were distinguished. Diversity, in terms of families present, ranged from 17 per sample at the shallowest, sandy station to 68 per sample at a deep station with heterogeneous sediments. The benthic biomass varied from 14.43 to 109.70 g/square m per sample. ... It does not appear that the study area would be a significant feeding area for the seals. ... Despite the periodic disturbance due to ice scouring, the benthos in samples from the "deep, heterogeneous" stations exhibited high levels of diversity and biomass. However the within station sampling variance in this group was also high, indicating a patchy or clumped distribution of the infauna. If dredging was performed in the study area, the patterns of recolonization and faunal distribution would likely be similar to those associated with ice scouring. (Au)

I-108138
Environmental overview of the King Point area, Yukon Territory / F.F. Slaney & Company. Olmsted, W.R. Fraker, M.A. Imperial Oil Limited [Sponsor].
Vancouver, B.C. : F.F. Slaney & Co. Ltd., 1975.
3 microfiches : maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE21)
Appendices.
References.
ACU

... Imperial Oil Limited is considering possible developments near King Point ... to obtain material and provide support facilities for the construction of artificial islands in Mackenzie Bay .... The specific objectives of the environmental overview were to: 1. Conduct a brief survey of available literature and synthesize these data to describe the present data base and assist in delineating potential environmental concerns; 2. Provide a preliminary assessment of the utilization of the upper Trail River by fish in terms of spawning, rearing and overwintering potential; 3. Obtain site specific fisheries and water chemistry data at proposed river crossings or activity areas; 4. Provide a preliminary evaluation of the fisheries resources within the area proposed for harbour development in terms of relative abundance, feeding, and overwintering potential; 5. Identify if fisheries resources exist in lakes and streams which may be directly affected by the proposed haulroad or used as a water source for winter roads. 6. Identify any fisheries resources within the area of proposed gravel removal sites ... 7. Identify observed moose and grizzly bear concentration areas and their respective summer ranges .... 8. Provide a preliminary assessment of the utilization of the area by caribou; and 9. Identify, during the course of normal field sampling activities, any observed raptor nesting. (Au)

I-108219
Beaufort Sea/Mackenzie Delta study / Burns, B. Erickson, R. Hodgins, M. Mackenzie, B. Lubinsky, I. Infinite Analysis. Dome Petroleum Limited [Sponsor]. Esso Resources Canada Limited [Sponsor].
[S.l. : s.n., 1980?].
4 microfiches : maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE32)
Analysis performed by Fisheries and Oceans contract personnel.
ACU

This data report summarizes analysis performed by Fisheries and Oceans contract personnel on information collected during the Beaufort Sea/Mackenzie Delta Study. [The topics under consideration were: aging of fish, sorting of stomach contents, sediment analysis, benthos sorting and identification, salinity analysis, and two Infinite Analysis programs]. Program 1 - Fish Inventory Program - program written to sort, store and perform statistical tests of fish tag/recapture information. Program 2 - Fish Stomach Content Program - program written to store all stomach content data. ... (Au)

I-108235
Investigations of the aquatic resources of the Parsons Lake region and environmental impact assessment of the Parsons Lake gas development / F.F. Slaney & Company. Gulf Oil Canada Limited [Sponsor].
Calgary, Alta. : F.F. Slaney & Co. Ltd., 1977.
5 microfiches : figures, maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE35)
Appendices.
References.
ACU

The purpose of this report is to review and consolidate information concerning aquatic resources which is pertinent to the Parsons Lake Region and to development activities proposed by Gulf. In addition, a brief assessment of impacts which might be expected as a result of development is included, based on the most recent but as yet not final development plan. To achieve these purposes, every potential source of information has been consulted in the preparation of this report. Particular emphasis has been placed on the results of 1976 field studies which were designed specifically to supply information relating to development plans existing in early spring, 1976. A brief review of complete studies follows. (Au)

I-108570
Baseline biological and chemical study for Issungnak O-61, Beaufort Sea / Beak Consultants Ltd. Crippen, R.W. McKee, P.M. Schiefer, K. Esso Resources Canada Limited [Sponsor].
Calgary, Alta. : Beak Consultants Ltd., 1981.
3 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE26)
Appendices.
References.
ACU

... This study was conducted ... to document the present levels of chemical parameters in sediments and biological tissues and to determine the present status of the benthic macroinvertebrate community in the vicinity of Issungnak O-61. Field work for this study was conducted in late summer 1980 immediately following island enhancement and prior to start-up of the 1980-1981 drilling operations. ... The primary objectives of this study are the following: 1. To analyze the sediments surrounding Issungnak O-61 for As and the trace metals Hg, Cd, Cr, Pb and Zn. Hereafter in this report, As is included under term "trace metals". 2. To analyze the benthic macroinvertebrate community surrounding Issungnak O-61 for species, density, biomass and trace metal content. 3. To relate sediment metal levels to benthic tissue metal levels, benthic density and benthic biomass in order to determine the significance of sediment trace metals on benthic macroinvertebrates. Additional objectives of this study include the determination and documentation of sediment biochemical oxygen demand, chemical oxygen demand, oil and grease, volatile solids and partical size distribution. Benthic species diversity and equitability were calculated and a cluster analysis carried out to provide further background biological information. Background tissue metal levels in larval and juvenile fish caught incidentally during this study were also measured. ... (Au)

I-108626
Marine biological impacts / Parsons, T.R.
Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea [Sponsor].
[S.l. : s.n.], 1982.
19 p. ; 28 cm.
(Beaufort E.I.S. technical specialist report)
ACU

The author addresses specific inadequacies in the Beaufort E.I.S. with respect to marine biological impacts of hydrocarbon development in the Beaufort Sea. He feels that by far the most serious risk to the environment is the large oil spill or blowout, and this, as well as the potential chronic build-up of hydrocarbons from minor spills, formation and production waters, etc. must be evaluated for likely damage. To this end the author outlines specific deficiencies of information within the E.I.S. (ASTIS)

I-109894
A study of the fishery resources of Tuktoyaktuk Harbour, southern Beaufort Sea coast, with special reference to life histories of anadromous coregonids / Bond, W.A.
Winnipeg, Man. : Dept. of Fisheries and Oceans, 1982.
vii, 90 p. : figures, tables ; 28 cm.
(Canadian technical report of fisheries and aquatic sciences, no. 1119)
Appendices.
References.
Mostly tables.
ACU

... Tuktoyaktuk Harbour is undergoing increased shoreline development and vessel traffic, and may soon be upgraded to the status of a public harbour. Dredging activity is increasing and minor oil spills within the harbour are already a common occurrence. Such events may impact negatively upon the fish resources of the area. Successful mitigation of such impacts demands an adequate data base relative to the fish resource, including complete descriptions of life history patterns and of habitats critical to the maintenance of the various fish populations. The purpose of the present study was to describe seasonal changes in the fish community of Tuktoyaktuk Harbour and to assess the significance of the harbour in terms of providing spawning, feeding, rearing, and overwintering areas for marine and anadromous fish. (Au)

I-112100
Bivalve mollusks of the western Beaufort Sea / Bernard, F.R.
(Contributions in science - Los Angeles County. National History Museum, no. 313, 1979)
Appendix.
References.
ACU

This report is a systematic review and identification guide to 58 species of bivalve mollusks collected between 0-2560 m in the western part of the Beaufort Sea. Oceanographically the region is an integral portion of the Arctic Ocean, but faunally it consists of contributions from both the Atlantic and Pacific oceans. Six species are stenobathyal endemics with no close boreal relatives, their presence showing that at least a fraction of the deep-water benthic fauna survived the past several periods of glaciation. During these periods the shelf was emergent and ice-scoured and its fauna obliterated. As conditions ameliorated, adaptable species migrated from adjacent boreal seas, notably the Beringia refugium and also the Atlantic sector to colonize the newly submerged shelf. 24 species are of Atlantic and 20 of Pacific origin, a pattern probably largely dictated by the oligohaline region of the Mackenzie River estuary which is an effective barrier to many species. The fauna is not depauperated and is numerically comparable to temperate regions with similar limited habitat niches. One new genus, Boreacola in the family Montacutidae, with the new species B. vadosa is described. A new species, Axinulus careyi in the family Thyasiridae is also proposed. ... (Au)

I-112178
Effect of low pH on the chemical composition of aquatic invertebrates from tundra ponds at the Smoking Hills, N.W.T., Canada / Havas, M. Hutchinson, T.C.
(Canadian journal of zoology, v. 61, no. 1, Jan. 1983, p. 241-249, figures, tables)
ISBN 0-662-51477-7
References.
ACU

Experiments were conducted to compare the relative sensitivity and chemical composition of aquatic invertebrates (insects and crustaceans) exposed to low pH. Test organisms were collected from tundra ponds at the Smoking Hills, N.W.T. One of the ponds was alkaline (pH 8.2), the other was acidified (pH 2.8) as a result of natural SO2 fumigations. Based on mortality rates, crustaceans were considerably more sensitive to low pH than insect larvae. Sensitive species (Crustacea: Daphnia middendorffiana, Diaptomus arcticus, Branchinecta paludosa, Lepidurus arcticus; and Diptera: Orthocladius consobrinus) were unable to maintain high internal levels of Na and Cl. K concentrations were also lower in dead and dying Daphnia but not in the more tolerant Diptera larvae (O. consobrinus and Chironomus riparius). There was a net loss of Ca at low pH, but this did not correlate with mortality. Daphnia middendorffiana recovered following brief exposure to pH 4.0. During recovery Na and Cl concentrations returned to their original levels. Acid-exposed Daphnia became infected by pathogenic fungi. No evidence of fungal infection was observed in any of the other treatments. Water chemistry also altered the chemical composition of aquatic invertebrates. All of the crustaceans as well as the trichopteran Limnephilus pallens had lower body Na, Cl, and Ca concentrations in the acidified pond water than in the alkaline pond water adjusted to pH 4.5. Part of this difference in their chemical composition may be due to elevated Al concentrations in the acidified pond water. (Au)

I-113476
The abundance of seals in the Beaufort Sea, northern Amundsen Gulf and Prince Albert Sound, 1982 / Canada. Wildlife Service. Kingsley, M.C.S. Alberta. University. Dept. of Zoology. Dome Petroleum Limited [Sponsor]. Gulf Canada Resources Inc. [Sponsor].
Edmonton, Alta. : Canadian Wildlife Service, 1983.
v, 16 p. : figures, tables ; 28 cm.
Cover title: Abundance of seals in the eastern Beaufort Sea, Amundsen Gulf and Prince Albert Sound, 1982.
References.
ACU

... The second of a series of monitoring surveys was flown in the Beaufort Sea off the Tuktoyaktuk Peninsula and the Mackenzie Delta, in northern Amundsen Gulf and in Prince Albert

Sound. Ice cover in the Beaufort Sea was restricted to a narrow strip of fast ice along the mainland coastline. The density of ringed seals was higher there than in 1981, and the estimated population very similar. Regressions of ringed seal density on habitat factors did not show any changes in density that could be attributed to hydrocarbon exploration. Amundsen Gulf and Prince Albert Sound were covered with 8/8 fast ice. High densities of ringed seals were seen throughout these areas, with some very dense concentrations near the western end. Bearded seals occurred along the seaward edge of the landfast ice in the Beaufort Sea, and on small floes further out in larger numbers than in 1981. (Au)

I-113522
Offshore distribution and numbers of white whales in the eastern Beaufort Sea and Amundsen Gulf, summer 1981 / LGL Limited, Environmental Research Associates. Davis, R.A. Evans, C.R. Sohio Alaska Petroleum Company [Sponsor]. Dome Petroleum Limited [Sponsor].
[S.l. : s.n.], 1982.
xiii, 76 p. : figures, tables ; 28 cm.
Appendix: Beaufort scale of sea states.
References.
ACU

This report presents new information on the distribution, abundance, and movement patterns of white whales in the Canadian Beaufort Sea and Amundsen Gulf between mid July and mid September 1981. Information on white whales was collected during four large-scale systematic aerial surveys designed to census bowhead whales (Davis et al. 1982). The survey techniques were also suitable for observations of white whales. The study area (Canadian Beaufort Sea south of 72 degrees N and Amundsen Gulf) was divided into five blocks; from west to east these are the Yukon, Delta, Tuktoyaktuk Peninsula, West Amundsen Gulf and East Amundsen Gulf blocks. Transect lines, oriented north-south, were spaced evenly across these blocks. Coverage of these lines varied with each survey period. Supplementary data from a variety of opportunistic surveys also were obtained ... (Au)

I-115169
International Porcupine Caribou Commission : charter agreement.
(Arctic policy review, 1983 [02] Feb., p. 9-12, ill. map)
ACU, NFSMO

In a display of international cooperation and Native leadership, representatives from both Eskimo and Indian communities in Northeast Alaska and Northwest Canada gathered in Arctic Village, 30 November and 1 December 1982, and formed a commission to protect the Porcupine caribou herd. ... The Porcupine herd, which migrates yearly between Alaska and Canada and whose calving grounds near the Beaufort Sea lie in both countries, is an important subsistence resource for the more than 7,000 villagers within a region the size of the state of Wyoming. ... The prospects of exploration of the Arctic National Wildlife Refuge (ANWR) in the U.S. and the building of harbor facilities by Gulf Canada at King Point on the Yukon Beaufort coast gave new urgency to their action. (Au)

I-115576
Distribution, numbers and productivity of the western arctic stock of bowhead whales in the eastern Beaufort Sea and Amundsen Gulf, summer 1981 / LGL Limited, Environmental Research Associates. Davis, R.A. Koski, W.R. Richardson, W.J. Evans, C.R. Alliston, W.G. Sohio Alaska Petroleum Company [Sponsor]. Dome Petroleum Limited [Sponsor]. ARCO Alaska, Inc. [Sponsor]. BP Alaska Exploration, Inc. [Sponsor]. Chevron U.S.A., Inc. [Sponsor]. Exxon Company, U.S.A. [Sponsor]. Phillips Petroleum Company [Sponsor]. Shell Oil Company [Sponsor]. Alaska [Sponsor]. Esso Resources Canada Limited [Sponsor]. Gulf Canada Resources Inc. [Sponsor].
Toronto, Ont. : LGL Limited, 1982.
xii, 134 p., 11 p. of plates : ill. (some col.), figures, tables ; 28 cm.
Appendices.
References.
ACU

The overall objectives of this study were to (1) estimate the size of the Western Arctic population of bowhead whales, (2) estimate the production of calves, (3) determine the distribution, relative abundance and movements of bowheads on their summer range in the eastern Beaufort Sea, and (4) determine the length composition of the population. The estimates of population size and calf production were to be independent of the estimates of these parameters that have been obtained from bowheads passing Barrow, Alaska, in spring. (Au)

I-117250
Waterbird surveys of McKinley Bay, Northwest Territories, 1982 / Cornish, B.J. Allen, D.L. Canada. Wildlife Service [Sponsor]. Canada. DIAND [Sponsor]. Dome Petroleum Limited [Sponsor]. Gulf Canada Resources Inc. [Sponsor].
[S.l., n.p.], 1983.
x, 105 p. : figures, tables ; 28 cm.
Appendices.
ACU

... McKinley Bay may become a major support base for Dome and Gulf in the future (Dome, Esso and Gulf 1982). ... The Canadian Wildlife Service was concerned that these developments could adversely affect the migratory bird usage of the area. A bird monitoring study involving aerial surveys with joint government and industry participation was therefore initiated in 1981 (Scott-Brown et al. 1981) to describe waterbird usage of McKinley Bay prior to extensive development. In order to detect possible changes in bird usage of the bay as a result of development, first the natural annual fluctuations in the number of birds in the bay must be established. To do this, several years of data are needed. Thus, the aerial surveys that were carried out in 1981 were repeated in 1981 to allow a comparison of data that would detect any change in numbers of each species .... Hutchison Bay ... was added to the 1382 study as a control. (Au)

I-117277
An aquatic resource survey of islands bordering Viscount Melville Sound, District of Franklin, Northwest Territories, background report no. 2 / Stewart, D.B. Bernier, L.M.J. Canada. Lands Directorate [Sponsor]. Canada. Northern Environmental Protection and Renewable Resources Branch [Sponsor].
Ottawa : Supply and Services, 1983.
(Land use information series - Canada. Lands Directorate)
ISBN 0-662-12487-1
Appendices.
References.
ACU

This report documents the results of survey work conducted in the summer of 1981 for the Northern Land Use Information Series mapping program. This fisheries survey encompasses Bathurst, Melville, Prince of Wales and northern Victoria islands in the District of

Franklin, Northwest Territories .... These islands border Viscount Melville Sound which is an area of interest for potential resource and transportation development. The Northern Land Use Information Series is an environmental research and information mapping program for northern Canada, which provides a reconnaissance-level information base to facilitate regional planning and application of the Territorial Land Use Regulations. ... During the survey, data were collected on freshwater and marine fish, planktonic and benthic invertebrates, water chemistry, and domestic and commercial fisheries. This report summarizes that information and briefly discusses previous freshwater and marine research in the area. Wildlife and botanical observations are included in appendices along with a list of other reports in the Northern Land Use Information Series. ... (Au)

I-118109
Raptor survey along the Norman Wells Pipeline route, 1981 / McCourt Management Ltd. Ealey, D.M. Interprovincial Pipe Line (NW) Ltd. [Sponsor].
[Edmonton, Alta.] : Interprovincial Pipe Line (NW) Ltd., 1982.
iii, 13 leaves : maps, tables ; 29 cm.
Lacking maps. IPL has deemed that raptor nesting information contained on maps is of a confidential nature.
ACU

A survey of nesting areas for sensitive raptor species was conducted from 27 June to 1 July, 1981 along Interprovincial Pipe Line (N.W.) Limited's proposed pipeline route from Norman Wells, N.W.T. to Zama Lake, Alberta. This survey was an extension of a 1980 survey (Ealey and McCourt 1980) which identified potentially sensitive nesting areas, but which could not conclusively indicate occupancy or success of nest sites observed. The purpose of the 1981 survey was to examine all nesting areas within a potentially "sensitive zone" of 3.2 km from the proposed pipeline route, to determine species of raptor currently using nest sites, and to assess the sensitivity and importance of the nesting areas to activities planned during construction and operation of the proposed pipeline. ... (Au)

I-118214
Waterfowl migration surveys along the Mackenzie River, spring 1981 / McCourt Management Ltd. Geddes, F.E. McCourt, K.H. Interprovincial Pipe Line (NW) Ltd. [Sponsor].
[Edmonton, Alta.] : Interprovincial Pipe Line (NW) Ltd., 1982.
x, 70 leaves : figures, tables ; 29 cm.
Appendices.
References.
ACU

During late April and early May 1981, surveys and ground observations were conducted to identify concentration areas and densities of spring migrating waterfowl on the Mackenzie River from Fort Simpson to Norman Wells. Baseline information was gathered to determine in which areas and habitats waterfowl are most vulnerable to potential damage arising from oil spills under the ice in late winter. Data obtained in this investigation substantiate the results of earlier studies which found the Camsell Bend and Norman Wells regions of the Mackenzie River to be optimum spring migration areas ... (Au)

I-118478
Preliminary assessment of the length-frequency distribution and gross annual reproductive rate of the western Arctic bowhead whale as determined with low-level aerial photography, with comments on life history / LGL Limited, Environmental Research Associates. U.S. National Marine Mammal Laboratory [Sponsor]. U.S. National Marine Fisheries Service [Sponsor]. U.S. NOAA [Sponsor].
Toronto, Ont. ; Anchorage, Alaska : LGL Limited, 1983.
ix, 51 p., 15 p. of plates : col. ill., figures, tables ; 28 cm.
Appendices.
References.
ACU

... The study reported here is a first attempt at an alternative approach designed to gather large amounts of life history information in a short time. The study used low-level aerial photography to measure the length of bowheads and to identify animals individually based on natural markings on the body. ... We had developed the basis of the technique during a pilot study in the Canadian Beaufort Sea in 1981 .... However, the number of photographs obtained in 1981 was small and a principal objective of the 1982 study reported here was to refine the aerial photographic techniques and to test their accuracy and precision. ... The study was conducted on the bowhead summering grounds in the Canadian Beaufort Sea from 12 August-5 September 1982. ... the study provided important verification of the photographic technique and the method of individual identification. The report presents the results of these tests and then provides data on the length-frequency distribution of our sample, estimates of various life history parameters, and estimates of the gross annual reproductive rate. Throughout the report we attempt to evaluate the obvious, and not so obvious, biases that may be associated with the techniques used. ... (Au)

I-119377
The birds of the Beaufort Sea, an annotated bibliography / LGL Limited, Environmental Research Associates. Johnson, S.R. Adams, W.J. Morrell, M.R. Canada. Wildlife Service [Sponsor].
Victoria, B.C. : Beaufort Sea Project, 1975.
3 microfiches ; 11 x 16 cm.
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 40)
ACU, NFSMO

This report is an annotated bibliography of birds found in the Beaufort Sea. Included are citations of bird studies in Scandinavia, Siberia, Alaska and Hudson Bay. (ASTIS)

I-120499
The convergence of habitat structure in tundra collembolan communities (Insecta : order Collembola) / Toda, M.J. Tanno, K.
(The Canadian entomologist, v.115, no. 9, Sept. 1983, p.1129-1145, figures, tables)
References.
ACU

Habitat structure of two collembolan communities, one at Barrow, Alaska, U.S.A., the other at Tuktoyaktuk in the Mackenzie Delta, Canada, has been analyzed in relation to microtopographies characteristic of tundra regions. Multivariate statistical techniques, cluster analyses (UPGMA), and principal component analyses (PCA) reveal various ecological changes in component species. In spite of such local variations in component species, the two communities show similar patterns of habitat structure that are organized principally along a gradient of environmental moisture. (Au)

I-122815
Diatoms from the southern Beaufort Sea / Lichti-Federovich, S.
(Paper - Canada. Geological Survey, 83- 1B, p. 267-271, figures, table)
References.
ACU

Qualitative floristic analysis of 30 offshore summer phytoplankton samples from the southern Beaufort Sea resulted in the systematic enumeration of 40 genera comprising 135 diatom taxa. Positive correlation is suggested between cryophilic diatom distribution and sea ice proximity as well as between the relative frequency determinations of Thalassiosira baltica and decreased salinities caused by the freshening influence of the Mackenzie estuarine system. (Au)

I-123242
Origin, distribution and postglacial dispersal of a swimbladder nematode, Cystidicola stigmatura / Black, G.A.
(Canadian journal of fisheries and aquatic sciences, v. 40, no. 8, Aug. 1983, p.1244-1253, figures, table)
References.
ACU

New distributional records indicate that Cystidicola stigmatura occurs in lake trout ... and Arctic char ... in the Great Lakes and St. Lawrence River drainage basins, in lakes along an arc extending from northwestern Ontario to Great Bear Lake and into the Canadian Arctic Archipelago but not elsewhere. This distribution can be explained by the parasite's probable postglacial history. I hypothesize that the nematode survived in only one glacial refugium. During deglaciation the parasite probably dispersed with lake trout from its refugium in the upper Mississippi River region into the Lake Michigan basin. ... Northward dispersal was probably via the glacial waters of the Lake Michigan-Lake Superior basin through glacial Lakes Agassiz, McConnell, and Coppermine to the Arctic Ocean. Arctic char would have first acquired the parasite at this time. Extant parasite populations along this dispersal route occur in Minnesota, northwestern Ontario, Manitoba, Saskatchewan, and the Northwest Territories. Invasion of the Arctic Archipelago has been with anadromous fishes. The apparently restricted preglacial distribution of the nematode and recent history of its intermediate host (Mysis relicta) in freshwater suggests that C. stigmatura may have arisen as a species during the last glaciation. (Au)

I-124575
The effects of vessel traffic in the Arctic on marine mammals and recommendations for future research / Mansfield, A.W.   Canada. Dept. of Fisheries and Oceans. Arctic Research Directors Committee [Sponsor].
Ste. Anne de Bellevue, Que. : Dept. of Fisheries and Oceans, Arctic Biological Station, 1983.
x, 97 p. : figures, map, tables ; 28 cm.
(Canadian technical report of fisheries and aquatic sciences, no. 1186)
References.
ACU

The proposed development of arctic offshore hydrocarbon resources will lead to a marked increase in vessel traffic, particularly in the southeastern Beaufort Sea and in the Northwest Passage from Amundsen Gulf to Davis Strait. This increase is best exemplified by the projected use of supertankers, which will cause unprecedented levels of disturbance from their year-round icebreaking activities and by the very high levels of sound produced underwater, principally by propeller cavitation. The possible effects of such disturbance on the marine mammals that occur along the proposed tanker route are discussed, and recommendations are made for appropriate scientific research that will help to predict the outcome of such interactions. (Au)

I-124745
Bowhead whale length estimates and calf counts in the Eastern Beaufort Sea, 1980 / Cubbage, J.C.   Rugh, D.J.
(Report - International Whaling Commission, no. 32, 1982, p. 371-373, tables)
References.

Observations of bowhead whales (Balaena mysticetus) in the eastern Beaufort Sea August-September 1980 resulted in 9 calf sightings. Of 179 whales classified into length categories during aerial surveys, 6(3.4%) were calves; of 191 seen from shipboard, 3(1.6%) were calves. These percentages are consistent with values from similar studies on bowheads. However, our results tend to be lower for bowheads than production estimates based on reproductive data for other mysticete populations. (Au)

I-125202
Reindeer in the Belcher Islands.
[2] p. : map ; 28 cm.
(NWT wildlife notes, no. 6, Nov. 1982)
ACU

In March 1978, 60 reindeer were transplanted from the Reindeer Reserve near Tuktoyaktuk to the Belcher Islands in Hudson Bay. The transplant was undertaken to replace native caribou which disappeared from the islands in the 1870's .... Observations of the herd remained inconclusive until March 1982 when an aerial survey produced an actual count of 222 reindeer. (Au)

I-127043
Habitat selection and food habits of marten, Martes americana, in the Northwest Territories / Douglass, R.J.   Fisher, L.G.   Mair, M.
(The Canadian field-naturalist, v. 97, no. 1, Jan.-Mar. 1983, p. 71-74, tables)
References.
ACU

Habit data were gathered at Chick Lake and Moon Lake, Northwest Territories on permanently marked transects by recording tracks. Marten selected different habitat in different seasons and study sites. Scats collected on transects showed food habits to be similar to other areas of North America in that voles were the major food of Martens. However Marten in the Northwest Territories appeared to be selective in species consumed in contrast to more opportunistic feeding habits reported for other areas. (Au)

I-133337
Distribution of arctic marine isopods of the Mesidotea (= Saduria) complex in relation to depth, temperature, and salinity in the southern Beaufort Sea / Percy, J.A.
(Arctic, v. 36, no. 4, Dec. 1983, p. 341-349, figures, tables)
References.
ACU

Three benthic isopods of the Mesidotea (= Saduria) complex are common in the coastal waters of the southern Beaufort Sea. Their relative distribution in relation to water depth, temperature, and salinity was studied by means of 146 trawl, grab, and trap samples. Mesidotea entomon is restricted to the warm, brackish nearshore estuarine zone, in water depths of less than 10 m. M. sibirica is most commonly encountered at intermediate depths of 5-25 m. M. sabini is the most common marine form, occuring at depths from 10 to 441 m. This distribution pattern is similar to that reported for these species in the European Arctic. Salinity fluctuations caused by wind-induced shifts in the location of the river plume, and the occurrence of deep, high-salinity water close to shore, results in overlaps in distributions of the isopods in some areas adjacent to the delta. (Au)

I-133760
Mortality rate in the Porcupine caribou herd / Martell, A.M. Russell, D.E.
(Proceedings of the Third International Theriological Congress, Helsinki, 15-20 August, 1982. [Volume] VII. Third International Reindeer/Caribou Symposium, Saariselka, 23-26 August, 1982 / Edited by E. Pulliainen. Acta zoologica fennica, no. 175, 1983, p. 139-140, table)
References.
ACU

By conventional life-table analysis, assuming a stable population, the mortality rate in the Porcupine Caribou Herd between 1972 and 1977 was estimated to be 0.29 for all age classes and 0.28 for 3+ animals. Based on the unadjusted age distribution of the hunter harvest the mortality rate for 3+ animals was 0.41 for males, 0.20 for females, and 0.25 for both sexes combined. Using census, recruitment and hunting parameters the mortality rate was 0.07; 0.04 from natural causes and 0.03 from hunting. Biases in the estimates and the need for new techniques to estimate mortality rate are discussed. (Au)

I-133779
The distribution, numbers and movements of the Bluenose caribou herd, Northwest Territories, Canada / Carruthers, D.R. Jakimchuk, R.D.
(Proceedings of the Third International Theriological Congress, Helsinki, 15-20 August, 1982. [Volume] VII. Third International Reindeer/Caribou Symposium, Saariselka, 23-26 August, 1982 / Edited by E. Pulliainen. Acta zoologica fennica, no. 175, 1983, p. 141-143, figures)
References.
ACU

The distribution, numbers and movements of caribou in a 210,000 square km area north of Great Bear Lake were studied between March 1980 and February 1981. Most (94%) of the Bluenose herd wintered in the forested region between the Horton and Mackenzie Rivers. Tundra wintering animals (6%) occupied a small area in the vicinity of the Rae-Richardson Rivers. Mean group sizes were almost twice as large in forested vs. tundra winter ranges. Mean group sizes decreased significantly between 1980 and 1981 on both forested and tundra winter ranges partially in response to the mild winter of 1981. In February 1981 a stratified sample of an area of 60,000 square km estimated 38,497 +- 10,442 caribou in the Bluenose herd. Recruitment in February 1981 was estimated at 17.8% (n=296). Mortality rates from human kill and natural factors are estimated at 6.5% and 8 percent respectively. Seasonal movements are diffuse probably because of the small area of range compared to other caribou populations. The distance between winter range and calving grounds is approximately one third that of other caribou populations. Timing of movements is consistent with other caribou populations suggesting response to a consistent factor such as photoperiod. (Au)

I-133787
Hunting patterns and the distribution of the Beverly, Bathurst and Kaminuriak caribou herds based on tag returns / Heard, D.C.
(Proceedings of the Third International Theriological Congress, Helsinki, 15-20 August, 1982. [Volume] VII. Third International Reindeer/Caribou Symposium, Saariselka, 23-26 August, 1982 / Edited by E. Pulliainen. Acta zoologica fennica, no. 175, 1983, p. 145-147, figure)
References.
ACU

Over 10,000 barren-ground caribou ... in the Beverly, Bathurst and Kaminuriak caribou herds have been marked with ear tags, neck collars or both since 1959. The objective of the marking program was to learn more about herd movements and seasonal distribution, to document any interchange of caribou among herds, and to collect information on the numbers, distribution and composition of those caribou shot by hunters. Kaminuriak herd tags returned before 1966 and Beverly and Bathurst tags returned before July 1970 have been published. This paper analyzes the subsequent tagging and return data and compares these results with those already published. Since the 1966 and 1970 analyses, over 1300 caribou have been tagged and 179 tags (24% of all returns) have been recovered. The overall tag return rates are 7.2%, 5.4% and 6.4% for the Beverly, Bathurst and Kaminuriak herds respectively. The recent tag recoveries illustrate the same hunting trends as the earlier returns. More males were shot than expected (based on the number tagged) and more caribou were shot in winter than summer. Tag return locations indicated that the ranges of all three herds were, with one exception, distinct and stable over time. Part of the winter range of the Kaminuriak and Beverly herds overlapped throughout the tag return period. There was no evidence to suggest that there was any major shift of caribou from one herd to another. (Au)

I-133795
Caribou on Victoria Island, Northwest Territories, Canada / Jakimchuk, R.D. Carruthers, D.R.
(Proceedings of the Third International Theriological Congress, Helsinki, 15-20 August, 1982. [Volume] VII. Third International Reindeer/Caribou Symposium, Saariselka, 23-26 August, 1982 / Edited by E. Pulliainen. Acta zoologica fennica, no. 175, 1983, p. 149-151, figure)
References.
ACU

The first systematic aerial survey of caribou on Victoria Island was conducted in August 1980. Caribou numbers were estimated to be 7,936 +- 1,839. The majority of caribou (74.2%) were found on the north-western portion of Victoria Island. Caribou in this area were typical Peary caribou whereas caribou south of this area were darker and larger forms thought to be intergrades between Peary caribou and former mainland migrants (the Dolphin and Union herd). Calf/cow percentages were high (greater than 70%) and natural mortality rates are believed to be low. Mortality from Inuit hunting may be very high (greater than 13%). Male caribou occurred at lower elevations (less than 150 m a.s.l.) than females. A relatively high density (7.5/100 square km) of caribou occurred at the head of Prince Albert Sound. Mean group size (excluding singles) was 3.5 (SE +- 0.41) but observed changes in group size suggested a dispersal of caribou during the survey period. Two possible calving grounds were identified during the survey. (Au)

I-134961
Reindeer at Mackenzie : a selected annotated bibliography / Canada. Great Lakes Forest Research Centre. Sims, R.A. Murtha, P.A.
Ottawa : DIAND, 1983.
iv, 63 p. : figures ; 28 cm.
(Environmental studies - Canada. Northern Environmental Protection and Renewable Resources Branch, no. 31)
ISBN 0-662-1266-1
ACU

This annotated bibliography contains 119 entries dealing with the Mackenzie Delta reindeer herd, a commercial reindeer operation that began as a government-sponsored "experiment" in the 1930's. The bibliography is organized by author's surname and indexed by keywords (subjects). About half of the entries deal specifically with the herd, but others are included that give perspective and information on the rangeland that is important for future management. (Au)

I-135623
Study design to measure distributional changes of barren-ground caribou near a winter road / Jingfors, K. Gunn, A.
Yellowknife, N.W.T. : N.W.T. Wildlife Service, 1981.
vii, 44 p. : figures, table ; 28 cm.
(Progress report - N.W.T. Wildlife Service, no. 5)
Cover title: Barren ground caribou : distributional changes near a winter road.
Appendix.
References.
ACU

The increased use of transportation facilities in northern development has raised concerns over potential impacts on barren-ground caribou .... Previously, a segment of the Bathurst herd has wintered in the Gordon Lake area, Northwest Territories, where a winter road has been constructed to haul supplies to local mine sites. A study was initiated in January 1981 to evaluate a technique for measuring distributional changes of caribou wintering in the vicinity of the road. A block survey was designed to enable replication of aerial surveys in localities exposed to the road. Surveys were scheduled prior to, during and following road construction. Two aircraft types (fixed-wing and helicopter) were to be used simultaneously to compare relative precision and efficiency. Only a few caribou were found in the Gordon Lake area during reconnaissance flights; most animals remained in the forest-tundra transition zone. Due to the scarcity of caribou near the winter road, the block surveys were cancelled. A critical review of some approaches used in previous disturbance research is given. (Au)

I-135631
Characteristics of three barren-ground caribou calving grounds in the Northwest Territories / Fleck, E.S. Gunn, A.
Yellowknife, N.W.T. : N.W.T. Wildlife Service, 1982.
x, 158 p. : figures, tables ; 28 cm.
(Progress report - N.W.T. Wildlife Service, no. 7)
Cover title: Barren ground caribou calving grounds in the Northwest Territories.
Appendices.
References.
ACU

Potential effects of human activities on barren-ground caribou on the Bathurst, Beverly and Kaminuriak calving grounds are unknown. In April, 1980, DIAND sponsored the N.W.T. Wildlife Service in a 3-year disturbance study on calving grounds. The first year of the study concentrated on histories of the use of calving grounds, topography, snowmelt patterns, vegetation and abundance of predators. Historically, the general location of the calving grounds has not changed. Varied topography is a characteristic of all three calving grounds. The geographical limits of the more varied topography approximately align with the borders of the Beverly and Kaminuriak calving grounds. The three calving grounds are located in the northern portion of each herd's range and remain snow-covered longer than more southerly portions of their ranges. Snowmelt begins and ends earlier on the Kaminuriak and southern portion of the Beverly calving grounds (early June) than on the Bathurst and northern portion of the Beverly calving grounds (mid-June). Willows and dwarf birch shrubs characterize the vegetation on the Kaminuriak and southern portion of the Beverly calving grounds. Lichen communities dominate the vegetation on the northern portion of the Beverly calving grounds. The number of wolf dens is low on the calving grounds compared to areas near treeline. None of the environmental characteristics examined clearly isolate the calving grounds from their surrounding areas. The general location of traditional calving grounds is likely the influence of several interacting factors including plant phenology and predator avoidance. Traditional behaviour is likely important in explaining the choice of specific location of calving ground. (Au)

I-135640
The grizzly bears of the Mackenzie Mountains, Northwest Territories / Miller, S.J. Barichello, N. Tait, D.
Yellowknife, N.W.T. : Wildlife Service, 1982.
xii, 118 p. : figures, tables ; 28 cm.
(Completion report - N.W.T. Wildlife Service, no. 3)
Cover title: Mackenzie Mountain grizzly bears, Northwest Territories.
Appendices.
References.
ACU

In response to concern for the hunted grizzly bear population in the Mackenzie Mountains, N.W.T., a study of bears in a representative area of the Mackenzie Mountains was carried out from 1973 until 1977 by the N.W.T. Wildlife Service. Within the 3000 square km study area which is in the Backbone and Sekwi Ranges of the Mackenzie Mountains bears were captured, measured, tagged and equipped with radio collars. All random observations of bears during aircraft surveys were recorded. Faecal collection and analysis was carried out to determine food habits, and habitat studies were done to determine types and extent of vegetation zones. Den characteristics and denning behaviour are described. From 67 captured bears and a total of 109 random bear observations made from 38 individually marked bears, we determined the age structure and potential growth of the population, and its distribution and abundance. Hunter kill data was used to consider the impact of hunter harvest on the age structure and distribution. The implications to grizzly bear management were then considered. Our data showed natality rates to be low, and we conclude that this together with the late age of reproduction and the long inter-litter period severly limit the growth potential of the population. Including the observed mortality rates in our model indicates a declining population. We conclude that the Mackenzie Mountains grizzly bear population is marginal and any harvesting, including the current rate, is excessive. ... (Au)

I-137987
An international conservation challenge : the Porcupine caribou / LeBlond, N.R. Rees, W.E.
(Threatened and endangered species and habitats in British Columbia and the Yukon : proceedings of the symposium / Edited by R. Stace-Smith, L. Johns and P. Joslin. - Victoria, B.C. : Ministry of Environment, Fish and Wildlife Branch, 1980, p. 228-240, figures)
References.
ACU

... Portions of the northern Yukon and northeastern Alaska represent an irreplaceable natural heritage woven together by the timeless migrations of the Porcupine caribou herd. This is one of the world's last great herds of the Barren Ground caribou .... Debate over how to preserve this herd and its vast ecosystem spans fifty years. A partial commitment towards protecting the caribou was realized in 1960, when the Arctic National Wildlife Range in Alaska was established, but what about the northern Yukon? Why has it taken so long for Canada to formally designate any form of wildlife and wilderness reserve? Will the Porcupine caribou survive the political games, or will they go the way of other herds, dwindling to almost insignificant numbers? [The author reviews the early history of caribou study and reconnaissance and the bid for conservation and the establishment of a reserve, which has recently come under opposition from both sides of the border. More critically, he discusses the problems of the Migratory Caribou Convention, and the lack of a positive negotiation of terms and conditions for an international convention for the joint protection and management of the caribou.] (Au)

I-138169
Mid-summer ichthyoplankton populations of Tuktoyaktuk Harbour, N.W.T. / Ratynski, R.A.
Winnipeg, Man. : Dept. of Fisheries and Oceans, 1983.
iv, 21 p. : figures, tables ; 28 cm.
(Canadian technical report of fisheries and aquatic sciences, no. 1218)
References.
ACU

The ichthyoplankton of Tuktoyaktuk Harbour, N.W.T. and adjacent waters of Kugmallit Bay was sampled by plankton net(mesh size 750 micro m), during 11 July to 16 August, 1982, to determine species composition, abundance, distribution, and growth. There was also limited sampling by epibenthic sled and seine. Rainbow smelt ... was the most abundant larva in plankton net catches from the harbour ... followed by Pacific herring ... and saffron cod .... Larval starry flounder ... lumpenids-blackline prickleback ... and/or slender eelblenny ... fourhorn sculpin ... and Arctic cod ... were also captured within the harbour. Only rainbow smelt, Pacific herring, fourhorn sculpin, and Arctic cod were obtained outside the harbour in Kugmallit Bay and smelt and herring were far less abundant than in the harbour. A partial temporal separation of larvae in the harbour occurs as a result of different spawning times. Lumpenids, fourhorn sculpin, and gadids would appear first in the ichthyoplankton under the ice followed by rainbow smelt and Pacific herring at breakup and starry flounder in August. There was also spatial separation of larvae vertically. Most rainbow smelt, Pacific herring, and fourhorn sculpin larvae were obtained from the harbour near the surface at the higher temperatures and lower salinities found above the halocline. Saffron cod, stárry flounder, and lumpenids were found in the colder, more saline waters of the upper halocline. The size of smelt, herring, and sculpin at the end of August was similar to that reported for other areas in the southern Beaufort Sea. Saffron cod grew very slowly, reaching a mean total length of only 7.5 mm by mid-August. Mean total length of starry flounder in early August was 4.2 mm. (Au)

I-139742
Wildlife of the Mackenzie Delta region / Martell, A.M. Dickinson, D.M. Casselman, L.M.
Edmonton, Alta. : University of Alberta, Boreal Institute for Northern Studies, 1984.
xi, 214 p. : figures, maps, tables ; 28 cm.
(Occasional publication - Alberta. University. Boreal Institute for Northern Studies, 15, figures, tables)
Appendices: Detailed map sheets of the Mackenzie Delta region.
References.
Glossary.
Includes annotated lists of species.
ACU

... For all but fifteen or so of the last several thousand years, until escalation of oil and gas exploration activities in the southeastern Beaufort Sea, wildlife was the mainstay of the Delta economy and it continues to be the principal renewable resource base. As such it assumes the economic position taken in more temperate regions of Canada by agriculture and forestry, with an economic potential measured in thousands of years rather than in the decades that are estimated for most oil and gas deposits. ... The following report was written with the purpose of firstly synthesizing information from published historical accounts with that of more recent papers in an annotated list of all vertebrate wildlife species that occur or have been reported in the Delta Region, with a brief discussion of some of these species; and secondly, of providing a list of references that for the most part are readily available to the public. References to less easily obtained consultants reports and unpublished manuscript reports have been kept to a minimum. One of the principal aims has been to make available biological information on wildlife of the Region to people who are not scientists but who, perhaps, have had some high school biology. Technical terms have been explained in a glossary at the end of the report. ... (Au)

See Also : B-48518, B-107093, B-108162, D-43850, D-43877, D-107174, F-43869, F-43893, F-108561, H-137170, J-79197, J-108090, L-19593, L-36242, L-120596, N-42480, Q-2860, Q-2950, Q-2968, Q-11118, Q-11592, Q-12980, Q-13021, Q-13048, Q-23396, Q-26484, Q-31186, Q-40541, Q-43885, Q-43990, Q-73784, Q-84263, Q-107050, Q-107107, Q-107182, Q-107921, Q-108103, Q-116769, Q-116777, Q-116785, Q-118117, Q-118125, Q-118168, Q-118796, S-42250, S-52787, T-9903, T-15512, U-124036, V-57070

J - ECOLOGY - Includes Environmental Protection.

J-4944
Arsenic in sediments, water and aquatic biota from lakes in the vicinity of Yellowknife, Northwest Territories, Canada / Wagemann, R. [et al].
(Archives of environmental contamination and toxicology, v. 7, 1978, p. 169-191, tables, maps)
References.
ACU

Arsenic concentrations were measured in aquatic invertebrates, macrophytes, sediments, and water of lakes in the vicinity of Yellowknife (N.W.T.), Canada. ...The arsenic concentration in invertebrates varied with sampling time, place, and taxon. Arsenic concentration factors were calculated, and found to decrease with increasing concentration of arsenic in ecosystem components of the lake. No evidence was found for biomagnification of arsenic through ascending trophic levels. In high-arsenic lakes herbivores had the highest arsenic concentrations, and omnivores the lowest. Pelecypoda, Ephemeroptera, Amphipoda, and Hirudinea were conspicuously absent from high-arsenic lakes. These particular organisms may be more susceptible to the effects of arsenic than others. (Au)

J-7129
A report on air quality in Yellowknife, Northwest Territories / Hazra, A.K. Prokopuk, R.
[Edmonton] : Northwest Region, Environmental Protection Service, 1977.
viii, 85p. : maps, tables, figures ; 28cm.
(Surveillance report - Canada. EPS. Northwest Region, EPS-5-NW-77- 55)
References.
ACU

... The results indicate an average arsenic concentration of 0.08 micrograms arsenic per cubic meter of air and an average arsenic deposition rate of 10 pounds of arsenic per square mile per month. Further, the results also indicate that 24-hour total suspended particulate levels exceed the maximum acceptable National Air Quality Objective approximately 10% of the time whereas sulfur dioxide levels are basically within the maximum acceptable National Air Quality Objectives. ... (Au)

J-11606
Biological productivity of the southern Beaufort Sea : the physical-chemical environment and the plankton / Grainger, E.H.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
82p. : maps ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 12a)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 12a)
Bibliography: p.79-82.
ACU, NFSMO

... Information was gathered on water temperature, salinity, light, dissolved oxygen, nitrate, phosphate, silicate, chlorophyll, particulate and dissolved organic carbon, bacteria and benthic and planktonic plants and animals. The object of the exercise was to define the present, relatively undisturbed Beaufort Sea biological system, to try to develop an understanding of its structure, in relation to the major variables of the present time, and in response to anticipated changes of the future resulting from oil exploitation. ... (Au)

J-16233
Distribution of tar and particulate pollutants along the Beaufort Sea coast / Wong, C.S. Macdonald, D. Cretney, W.J.
Victoria, B.C. : Beaufort Sea Project, 1976.
96p. : ill., figures, maps, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 13)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 13)
References.
ACU, NFSMO

... The objectives of the study are: (1) to establish the baseline distribution of particulate pollutants, especially for tar and plastics, in the present-day Beaufort Sea marine environment, (2) to establish areas with natural seepage of crude oil and (3) to establish the chemical characteristics of hydrocarbons in the present-day beach sediment, nearshore sediment and marine organisms, including fish. ... (Au)

J-16527
Biological and water quality surveys at potential mines in the Northwest Territories. I. Camlaren gold property, Gordon Lake / Moore, J.W. Hardin, M.J. McComiskey, J.E.
[Yellowknife] : Environmental Protection Service, Northwest Region, 1978.
vii, 85p. : figures, tables ; 28cm.
(Manuscript report - Canada. EPS. Northwest Region, NW-78- 5)
Appendices.
Bibliography: p.63-72.
ACU

... The concentration of most heavy metals in the water of Gordon Lake fell below detectable limits and met Canada Drinking Water Standards and Objectives. ... The species composition and population characteristics of the phytoplankton, phytobenthos, zooplankton and zoobenthos were typical for lakes .... Large numbers of lake trout, whitefish and pike, ... were recorded in the immediate vicinity of the Camlaren mine site. (Au)

J-16721
The northern Yukon : an ecological land survey / Canada. Ecological Land Classification and Evaluation Division. Wiken, E.B. Welch, D.M. Ironside, G.R. Taylor, D.G. Thie, J. Canada. Parks Canada.
[Ottawa : Ecological Land Classification and Evaluation Division, Lands Directorate], 1978.
1v. (various pagings) : ill., figures, tables, maps (part. fold.) ; 29cm.
Prepared for Parks Canada.
Appendices.
Bibliography: Leaves H1-H34.
ACU

... The report has three major parts. The first has sections describing the objectives, general environment and methodology. The second part covers the three levels of ecological generalization: the ecoregions, the ecodistricts and the ecosections. ... The final part includes sections regarding outstanding phenomena, recent history of man and wildlife habitat. (Au)

J-31437
Cosmos 954 : search for airborne radioactivity on lichens in the crash area, Northwest Territories, Canada / Taylor, H.W. Hutchison, E.A. McInnes, K.L. Svoboda, J.
(Science, v.205, Sept. 28, 1979, p.1383-1385, ill., map)
References.
ACU

The fission product radioactivity detected on lichens in the vicinity of the impact area of the Soviet satellite Cosmos 954 does not exceed the background levels found in the general area as a result of past nuclear explosions. (Au)

J-45675
["Onshore" environmental program detail Taglu-Richards Island, Mackenzie Delta] / F.F. Slaney & Company. Imperial Oil Limited.
[Vancouver : F.F. Slaney & Company Limited, 1972].
1v. (unpaged) : ill., figures, maps ; 29cm.
Prepared for Imperial Oil Limited.
ACU

This document describes planned environmental studies for the summer of 1972 to be carried out in the Richards Island region of the Mackenzie Delta. No results are given. (ASTIS)

J-47120
Environmental assessment and review : the case of McKinley Bay / Rees, W.E.
(Northern perspectives, v. 8, no. 2, 1980, p. 2-12, map, photo.)
Footnotes.
ACU, NFSMO

... The ... case study by Dr William Rees, which traces the McKinley Bay permit application through a complex of government committees and agencies, reveals that advice from government experts calling for full review of the environmental consequences of Dome's proposal was circumvented to allow Dome to proceed with all due speed. The documents which follow the McKinley Bay study, and deal with the rapid processing of the Wise Bay land use permit and the prolongation of risky drilling at Dome's Nerlerk M-98 drillsite last fall, illustrate the same problem. ... (Au)

J-58882
Cosmos 954 : the occurrence and nature of recovered debris / Gummer, W.K. Campbell, F.R. Knight, G.B. Ricard, J.L.
[Ottawa] : Atomic Energy Control Board, 1980.
vii, 60p. : ill., figures, tables, maps (1 fold.) ; 28cm.
ISBN 0-660-10589-6
Appendices.
References.
ACU

Cosmos 954, a Russian nuclear-powered satellite, re-entered the earth's atmosphere early in the morning of 24 January, 1978. ... Shortly thereafter, visual sightings in the Yellowknife area, Northwest Territories (NWT), confirmed that an unknown quantity of debris continued towards the ground in a northeasterly direction. ... The Atomic Energy Control Board (AECB) was given the responsibility for recovery, handling and disposition of debris located, that is, for matters related to the health and safety of people and the environment. ... The search and recovery operations and the ensuing analytical work produced a great volume of photographic records and detailed chemical and metallurgical analyses. A report such as this cannot include all the data but will offer typical information enabling the reader to learn the variety of material found, the extent of the search, the hazards presented by the debris, the precautions taken to minimize these hazards and the obvious lessons learned ... The report also presents summaries of work carried out by others .... (Au)

J-63606
Fire studies in the upper Mackenzie valley and adjacent Precambrian uplands / Rowe, J.S. Spittlehouse, D. Johnson, E.A. Jasieniuk, M.A.
Ottawa : DIAND, 1975.
ix, 128p. : ill., figures, col. photos., tables ; 28cm.
([Report] - Canada. Arctic Land Use Research Program, ALUR 75-75- 61)
(North of 60)
References.
ACU, SSU

This is a report on the second year of research concerning fire in the Northwest Territories. In 1974 work was continued in the Upper Mackenzie Valley and, in addition, studies were extended eastward on the Shield. ... The approach taken to field studies continued to be geographic and wide-ranging, with many sites examined for comparative purposes. The following objectives were pursued: (1) To continue an analysis of fire records and of climatic correlates. (2) To study fire recurrence on important terrain types in the Valley and on the Shield, using tree ring and stratigraphic techniques. (3) To examine fire effects on peat plateaus and on permafrost mineral soils. (4) To study the responses of vegetation to fire with attention to the autecology of dominant species. ... (Au)

J-73288
Effects of siltation on the ecology of Ya-Ya Lake, N.W.T. / Aquatic Environments Limited. McCart, P.J. Cross, P.M. Green, R. Mayhood, D.W. Tsui, P.T.P. Green, R.H. Canada. Northern Affairs Program. Canada. Arctic Land Use Research Program.
Ottawa : Indian and Northern Affairs Canada, Northern Affairs Program, 1980.
ix, 286p. : ill., figures, tables ; 28cm.
(Environmental studies - Canada. Northern Environmental Protection and Renewable Resources Branch, no. 13)
ISBN 0662-10796-9
Prepared for Arctic Land Use Research Program, Northern Environmental Protection and Renewable Resources Branch.
References.
ACU

... The major objective of the study was to determine the effects of sedimentation on various trophic levels, including fish, within a northern lake ecosystem. Other associated objectives were, on the basis of the results of the study, to provide a model whereby the impact of siltation on northern lake ecosystems can be better predicted and quantified and to propose quantitative criteria, defining acceptable levels of sedimentation, which could be used in regulating development projects in the north. (Au)

J-79197
Adaptation to an acid environment in Chironomus riparius (Diptera, Chironomidae) from Smoking Hills, NWT, Canada / Jernelov, A. Nagell, B. Svenson, A.
(Holarctic ecology, v. 4, no. 2, 1981, p. 116-119, figures, tables)
References.
ACU

The Smoking Hills in the North West Territories, Canada have burnt for centuries causing long term acidification of ponds in the vicinity. Chironomus riparius, a red chironomid larva dominated the bottom fauna in the ponds. It was investigated if it was the buffering capacity of the hemolymph rather than the oxygen binding capacity of its hemoglobin that gave these larvae a selective advantage and explained their high abundance. Canadian C. riparius larvae were compared with larvae of the same species from Sweden and with larvae of Chironomus plumosus and C. anthracinus also from Sweden. The Canadian strain of C. riparius survived 7 d exposure to pH 3.5 much better than the others. Titration curves on the hemolymph showed that the Canadian larvae had the highest buffering capacity. ... The hemoglobin content of the Canadian larvae was found to be twice as high as that of the same species from Sweden. (Au)

J-89001
The northern Yukon : an ecological land survey / Wiken, E.B. Welch, D.M. Ironside, G.R. Taylor, D.G.
Vancouver, Ottawa : Environment Canada, Lands Directorate, 1981.
xi, 197 p. : ill., photos., tables ; 28 cm + 2 maps folded in pocket.
(Ecological land classification series, no. 6)
Appendices.
Bibliography: p. 163-175.
ACU

The environment of the northern Yukon is well known in Canada for its diverse and unique land resources and for its archaeological and historical importance. The interests expressed by a host of wildlife, conservation, natural history, and native groups throughout Canada as well as abroad testifies to its national and international significance. The concerns cover a gamut of biological, physical, archaeological, and historical features. ... This survey served to provide a regional characterization of the wide range of land resources of the northern Yukon within a common framework while at the same time enabling Lands Directorate staff to research and further implement a more integrated approach to ecological land classification. The maps produced for the study also represent alternative techniques for the presentation of mapped information. The Lands Directorate is equally concerned with encouraging ecologically based approaches to land planning and environmental impact assessment. ... (Au)

J-90220
An environmental reconnaissance of the Missi Falls alternative route / Polar Gas Limited.
[Toronto : Polar Gas], 1981.
13 p., [6] p. of plates : col. ill., figure ; 28 cm.
(Environmental program - Polar Gas Limited)
ACU, OON

Between 22 and 24 July, 1981, the principals of Polar Gas' prime environmental consultants, accompanied by Polar Gas environmental staff, carried out an aerial reconnaissance of portions of the Missi Falls alternative pipeline route. A pipeline system along this route would move natural gas from the Arctic Islands and Mackenzie Delta/Beaufort Sea areas to southern markets. This report describes the environmental characteristics of areas along this route segment as observed from the air. ... (Au)

J-90239
Environmental overview of a portion of the proposed Polar Gas "Y" Line / Western Ecological Services (British Columbia) Ltd.
Peterson, E.B. Kabzems, R.D. Levson, V.M. Ward, M.L. Polar Gas Limited [Sponsor].
[Toronto : Polar Gas], 1981.
xix, 350 p. : figures, maps ; 28 cm.
(Environmental program - Polar Gas Limited)
Bibliography: p.1-318.
ACU, OON

This report contains detailed annotations of 181 references on renewable resources, non-renewable resources, resource use, land capability and physical and biological environmental features within a 50 km zone on either side of the proposed Polar Gas "Y" Line from approximately Aylmer Lake in the Northwest Territories southeastward to Windigo Lake in Ontario. This, 1,700-km segment of route is part of a combined pipeline system that would connect gas reserves of the Sverdrup Basin and the Mackenzie Delta/Beaufort Sea region to a common pipeline system. ... (Au)

J-103721
Northern fiction - northern homage / Ritchie, J.C.
(Arctic, v. 31, no. 2, June 1978, p. 69-74)
References.
ACU, NFSMO

... let me conclude by suggesting that the community of northern scientists ... was caught in disarray by the onslaught of development proposals. The response, translated by the eager media, was scrambled and so confused that much of our credibility has evaporated - particularly in the north. ... (Au)

J-105899
Additional environmental data, Mackenzie Valley and Beaufort Sea regions : submitted to Beaufort Sea Environmental Assessment Panel / Esso Resources Canada Limited.
[Calgary?] : Esso Resources Canada Limited, 1982.
vi, 240 p. : figures, tables, 28 cm.
(Beaufort E.I.S. support document, no. BEISSD37)
References.
Major external contributors to this report included: Hardy Associates (1978) Ltd., McCourt Management Ltd., LGL Limited, Aquatic Environments Ltd.
ACU

This report has been prepared as a supporting document to the Environment Impact Statement for Beaufort Sea Hydrocarbon Production. It provides additional environmental information for the Beaufort Sea onshore and Mackenzie Valley regions. Some of this information was excluded from the Beaufort EIS due to overall length and detail. Literature concerning disturbances to the various natural resources is also included as a basis for impact assessment. ... This report is divided into two major chapters. The first chapter discusses the sensitivity to disturbance of specific resources. Resource categories (eg. Soils, Vegetation, Mammals, Birds, Aquatic Resources) are discussed in the same order and general format as in the E.I.S. itself. The second chapter provides detailed information on the distribution, abundance and life histories of birds in the Canadian Beaufort Sea coastal region and the Mackenzie Valley. ... (Au)

J-108090
Environmental evaluation summary of construction and construction support activities related to the proposed ten year Beaufort Sea offshore exploration program / F.F. Slaney & Company.
Imperial Oil Limited [Sponsor].
Vancouver, B.C. : Slaney (F.F.) and Co. Ltd., 1977.
12 microfiches : figures, maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE16V1, RWE16V2, RWE16V3)
Appendices.
References.
Volume 2 title change: Environmental assessment of construction and ... .
Contents: volume 1(RWE16V1), and volume 2, which consists of 9 individually authored papers and which has been divided into (RWE16V2) and (RWE16V3).
ACU

[Volume I, the] summary volume contains a brief synposis of the proposed 10-year exploration program, the key important points and conclusions from the supporting data contained in Volume II, and an identification of further environmental information requirements. ... Volume II is a detailed report by study discipline that provides a synopsis and evaluation of available information, a delineation of concerns related to the proposed construction programs, an impact assessment of probable short-term, long term and cumulative environmental impacts, and an identification of further information requirements for effective environmental protection planning. ... [This volume consists of 9 individually authored reports: part 1. Introduction, part 2. Climatology and meteorology, part 3. Physical - chemical oceanography, part 4. Planktonic communities, part 5. Benthos, part 6. Fishes, part 7. Whales, part 8. Foxes, bears and seals, part 9. Avifauna.] (Au)

J-115924
The assessment of industrial impact on the northern frontier / Weick, E.R.
(Canadian issues, v. 2, no. 2, [1979?], p. 45-52)
References.
Paper presented at Association for Canadian Studies of National Conference, Winnipeg, University of Manitoba, 1978.
ACU

In this paper, I comment on the methodology of social impact assessment, and on the Mackenzie Valley Pipeline Inquiry (Berger Commission) as an example of such assessment. While the paper has particular relevance to the cross-cultural situation of the frontier, at least some of the things that it says could be regarded as having more general application. The paper is based directly on my observations, experience and reading while I was with the Berger Commission, with which I worked for some three years. (Au)

See Also : B-60160, D-74969, F-88307, F-88323, F-88374, F-88382, F-128040, H-11126, H-30163, H-38920, H-43621, H-85200, H-102199, H-122718, H-139831, H-140651, I-34665, I-62022, I-69906, I-89290, I-89303, I-91545, I-107875, I-108626, I-122815, I-124575, I-133337, I-137987, I-139742, L-14257, L-25623, L-25631, L-25640, L-29947, L-29955, L-102130, L-113530, L-120596, N-6238, N-7277, P-16080, P-19615, P-19623, Q-3280, Q-3972, Q-5037, Q-6394, Q-7978, Q-7986, Q-11720, Q-12955, Q-12963, Q-13030, Q-13528, Q-14281, Q-15555, Q-16470, Q-16489, Q-17019, Q-18775, Q-20702, Q-21202, Q-23221, Q-23256, Q-25410, Q-25798, Q-26700, Q-26956, Q-29912, Q-30074, Q-30082, Q-30090, Q-30821, Q-30872, Q-32085, Q-32220, Q-44504, Q-46175, Q-57410, Q-63410, Q-63916, Q-67660, Q-69264, Q-72761, Q-72770, Q-72788, Q-72796, Q-74381, Q-80691, Q-83380, Q-87769, Q-88838, Q-89010, Q-90115, Q-92002, Q-92037, Q-92070, Q-92088, Q-92096, Q-92193, Q-92207, Q-92215, Q-92223, Q-92231, Q-92240, Q-92258, Q-92312, Q-92428, Q-93548, Q-96342, Q-96350, Q-96369, Q-96377, Q-102890, Q-103560, Q-105589, Q-106887, Q-107115, Q-107808, Q-108227, Q-108537, Q-108553, Q-108642, Q-112712, Q-113107, Q-113395, Q-115630, Q-115711, Q-115851, Q-116769, Q-116777, Q-116785, Q-116793, Q-118222, Q-118800, Q-118931, Q-118940, Q-119008, Q-120618, Q-122165, Q-123510, Q-123609, Q-123650, Q-126241, Q-132454, Q-132586, Q-134171, S-6130, S-42269, U-19224, X-30317

K - MEDICINE, HUMAN PHYSIOLOGY, AND PUBLIC HEALTH

See Also : H-100064, T-24171, T-79588, T-104388, T-123188, T-125032

L - COMMUNICATIONS AND TRANSPORTATION

L-11975
Mackenzie River dredging : economic analysis / Canada. Arctic Transportation Agency.
[Ottawa] : Ministry of Transport, Arctic Transportation Agency, 1976.
2v. : tables, graphs ; 28cm.
Contents: - [v.1] - Economic analysis. - [v.2] - Addendum.
References.
ACU

... from a purely cost standpoint, dredging exclusively for pipeline construction logistics is the least cost alternative for either the CAGPL or Foothills proposal, for lead times of no greater than one year provided that at least one half of the total CAGPL tonnage or three quarters of the Foothills tonnage is moved via Hay River. Dredging for long term traffic growth is the least cost solution provided a convenient highway alternative is not available. (Au)

L-13714
Macplan : Mackenzie Aviation System Area Master Plan study : executive summary / Canada. Air Transportation Administration. Western Region. Civil Aviation Branch.
[Edmonton] : Transport Canada, Air Transportation Administration, Western region, Civil Aviation Branch, 1976.
iii, 26 leaves : maps, tables ; 28cm.
ACU

... The objectives of the macplan Study ... are as follows: 1 To conceive, develop, and produce a comprehensive plan of development to 1985 for the Mackenzie Area and Western Arctic which will: a) Recommend an optimum system of airways and air routes including communication facilities, air traffic services and facilities, en route and terminal navigation facilities and AES advisory services b) Determine roles and general locations for a system of airports ... 2 to make recommendations on alternatives for development to 1995 which will allow a flexible response to changing requirements. 3 To broadly identify costs and revenues associated with recommended developments. (Au)

L-14257
Guidelines to prepare an environmental impact statement for the proposed Mackenzie River Dredging Program / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Mackenzie River Dredging Program. Hill, H.M.
Ottawa : Environmental Assessment Panel Office, 1976.
8p. ; 28cm.
Cover title.
ACU

... The overview summary should briefly describe the project, the probable major environmental impacts, the ameliorating and mitigating measures to be implemented by the assessor, and the significance of the residual unmitigated environmental impacts. Any aspects of the development which might stimulate public concern should be described with particular clarity. The summary should also clearly identify data gaps or knowledge deficiencies, and the limitations they have imposed on the Environmental Impact Statement. ... (Au)

L-17949
Assessment of the effects of snow road construction and use on vegetation, surface elevations and active layers near Inuvik, N.W.T. / Younkin, W.E. Hettinger, L.R.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- , v.1, p. 480-486, figure, tables)
References.
ACU

... Results indicated a first year 43% mean decrease in plant cover. Evergreen and deciduous shrubs were initially affected, but some later recovery was indicated. Cover reduction of mosses and lichens, conversely, appears to be more permanent. There were no significant changes in surface elevation of the road or active layer thickness. (Au)

L-18970
The Dempster Highway - "Road to resources" / Macleod, W.G.
(Northern perspectives, v. 7, no. 1, 1979)
Excerpts from W. MacLeod, The Dempster Highway, in Northern Transitions, vol. 1. ed. E.B. Peterson and J.B. Wright (Ottawa : CARC, 1978) p. 191-250.
ACU, NFSMO

Describes the construction of the Dempster Highway, the environment and social impact of the road and the evolution of the Dempster Highway Management Plan. (ASTIS)

L-19488
Development of the Dempster Highway north of the Arctic Circle / Huculak, N.A. Twach, J.W. Thomson, R.S. Cook, R.D.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- , v.1, p. 798-805, ill.)
ACU

... The Design Criteria, Pre-engineering Activities, Construction Techniques and Road Performance are treated in some detail and should be of interest to any agency contemplating similar engineering/construction activities in comparative Regions of Canada North. They have also identified need for further research and experimental work in the interest of advancing engineering knowledge as related to highway construction in extreme Polar climates. (Au)

L-19593
The porcupine caribou herd and the Dempster corridor / Alaska Highway Pipeline Panel.
[Winnipeg : Alaska Highway Pipeline Panel, 1978?].
[7]p. : col. photos. ; 28cm.
Cover title.
ACU, SSU

The Alaska Highway Pipeline Panel has been concerned with the continued survival of the Porcupine caribou herd in the face of a Dempster Corridor across the range traditionally used by the herd. On February 19, 1978, 13 caribou specialists ... met in a workshop ... to examine what is known about the herd, and to discuss the state of international scientific knowledge about the impacts of highways and similar human intrusions on caribou populations. The participants applied their firsthand experience with the herd as well as with caribou populations in Scandinavia, Alaska and the USSR. ... (Au)

L-21237
Logistics operations : APOA Beaufort Sea projects 1970 / Smith, J.G.
[Calgary : Distributed by APOA, 1970].
2 microfiches : ill. ; 11x16cm.
(APOA project no. 2 : Beaufort Sea - ice movement and current survey - 1970. Report, no. 3)
(APOA project no. 3 : Ocean floor sampling Beaufort Sea 1970. Report, no. 2)
Appendices.
ACU, NFSMO

Imperial Oil Limited, operating on behalf of the Arctic Petroleum Operators Association (APOA), conducted a program in the Arctic in early 1970 to gather offshore environmental data. A sea-ice survey was undertaken to investigate movement of the ice, determine its composition and structure, and record ocean currents below it. An ocean-floor sampling study was conducted concurrently to determine the nature and characteristics of the sea-bottom sediments. The overall purpose of the program was to provide basic engineering design data for future offshore drilling and production operations. ... A helicopter-transportable seismic rig (HELI-DRILL) was contracted to drill and gather soil samples from the ocean-floor sediments. The ocean-floor sampling program was directed by a soil-mechanics consultant. Three helicopters were used to support the combined operations. Two small Bell 206 helicopters were used for surveying and sea-ice testing, while a larger Bell 205 helicopter was used to transport and supply the ocean-floor sampling group. ... (Au)

L-21270
Preliminary Arctic engineering study of surface transport vehicles / Rymes (J.E.) Engineering Ltd.
[Calgary : Distributed by APOA], 1970.
5 microfiches : ill. ; 11x16cm.
(APOA project no. 7 : Cross-country vehicle study. Report)
Appendices.
References.
ACU, NFSMO

The object of this study is to outline in a preliminary engineering sense the state of the art of surface transport vehicles and equipment now considered to be production hardware. Also included are those vehicles and equipment that are being considered for production in the foreseeable future. Our study at this time will be somewhat restrictive as our investigation will be related only to the low Arctic region with particular emphasis on the Mackenzie River delta area. At the same time, the vehicles and equipment selected will be primarily concerned with seismic and geophysical activities although in many instances, some of the vehicles may also be used for general Arctic transport work. Since a study of the state of the art of off highway vehicles generally implies some areas of dissatisfaction with current designs, accordingly our study will reflect on the general manner in which the selected vehicles are designed and to comment on what has been done to accommodate them for Arctic use. .. (Au)

L-23957
Yukon hails opening of the Dempster Highway / Wright, A.A.
(Canadian geographic, v. 98, no. 3, June/July 1979, p. 16-[21], ill. (part. col.))
ACU

Desribes the Dempster Highway, its history and construction. (ASTIS)

L-24562
Arctic winter evaluation study of transportation equipment / Rymes (J.E.) Engineering Ltd.
Gulf Oil Canada Limited [Sponsor].
[Calgary : Distributed by APOA], 1973.
4 microfiches : ill., figures ; 11x16cm.
(APOA project no. 49 : Study of Arctic transportation equipment - Mackenzie Delta. Report)
References.
ACU, NFSMO

The purpose of the study was to evaluate the effectiveness of the equipment being utilized for rig moves and logistic operations in the Mackenzie Delta. In general, the report examines in some detail the type and mix of equipment being utilized in northern operations, studies the problems and failures of the equipment and discusses possible methods of resolving the problems including improved maintenance techniques and design improvements. In addition, the study reviews and discusses potential uses of new equipment and more effective uses of existing equipment. (Au)

L-24716
Arctic winter test and evaluation of Kenworth Truck Model 953A / Rymes (J.E.) Engineering Ltd.
[Calgary : Distributed by APOA], 1972.
5 microfiches : ill., figures ; 11x16cm.
(APOA project no. 21 : Evaluation of desert type 6 x 6 oilfield truck in Arctic conditions. Report, no. 1-3)
References.
Contents: no.1 Initial stage. - no.2 Mid-winter stage. - no.3 Late winter stage.
ACU, NFSMO

A 6 x 6 oilfield truck with large low pressure tires was purchased for cross-country hauling in the Mackenzie Delta area during the winter. This project was designed to evaluate the vehicle's cross-country mobility, its overall performance as an oilfield truck in winter conditions, and the performance of various mechanical components. In particular, the behaviour of the tires in snow was observed and recommendations for tire design were made for work in unprepared terrain. ... (Au)

L-25534
Report on Phase I of Pressure Ridge and Ice Island Study : Evaluation of hovercraft and ice reconnaissance / Hnatiuk, J.
[Calgary : Distributed by APOA], 1971.
1 microfiche : figures, map ; 11x16cm.
(APOA project no. 17 : Beaufort Sea pressure ridge and ice island scouring. Report, no. 4)
ACU, NFSMO

The SRN-6 Hovercraft cannot negotiate jagged pressure ridges in excess of four or five feet in subzero temperatures without damage to the existing skirt. The SRN-6 can be used to quickly reach offshore areas where ice is relatively smooth and should provide a suitable means from which to conduct investigations on multi-year ice and ice islands. The vehicle should be equipped with Decca navigation, lights, bunks, and cooking facilities before being used. A means of controlling cabin heat should be provided. The cost will be $300.00 per hour plus fuel, accommodation, food, and travel. The minimum is three hours per day, averaged over the period. It is recommanded that the SRN-6 Hovercraft be used from which to conduct studies of multi-year and single year pressure ridges and ice islands. A route from Inuvik to Mackenzie Bay, around to the ice islands northwest of Pullen Island and to Tuktoyaktuk should be followed. Return trips to Inuvik and Tuk as necessary for rest, proper meals, and supplies would be necessary. A fuel cache near Shingle Point or at the mouth of the Middle Channel would be required. A Cessna 180 out of Tuk or Inuvik could be used at 70 cents per mile for reconnaissance and directing the Hovercraft to a specific floe. In the event of failure of the Hovercraft, a 204 Helicopter is available in Inuvik which could be used to rescue personnel or complete the project. (Au)

L-25623
Inspection of winter roads, Mackenzie Delta, following spring thaw, 1973 / New Brunswick. University. Muskeg Research Institute.
[Calgary : Distributed by APOA], 1973.
1 microfiche : ill. ; 11x16cm.
(APOA project no. 48 : Documentation of vehicular traffic on Mackenzie Delta tundra - 1972. Freeze-up and 1973 thaw. Report, no. 1)
ACU, NFSMO

... At no point along the winter roads did terrain disturbance of environmental or ecological significance occur. In the future, provided adequate snowfall occurs and sufficient snow cover can be maintained on the road right-of-way, it may be possible to reduce terrain disturbance on winter roads to an even lower level should this be desirable. (Au)

L-25631
Winter road preparation and commencement of traffic in the Mackenzie Delta / New Brunswick. University. Muskeg Research Institute.
[Calgary : Distributed by APOA], 1972.
1 microfiche : ill., figures ; 11x16cm.
(APOA project no. 48 : Documentation of vehicular traffic on Mackenzie Delta tundra - 1972. Freeze-up and 1973 thaw. Report, no. 2)
Contents: Pt. 1 Use of Rolligon for winter road preparation. - Pt. 2 Commencement of regular traffic on winter roads on Richards Island.
ACU, NFSMO

... In the interest of avoiding unnecessary environmental disturbance ... it is important to schedule the commencement of winter road preparation in such a way that ground conditions are taken into account. ... This part of the report describes the results of an experimental operation carried out to evaluate the application of a Rolligon RD85 vehicle in preparing a winter road on Richards Island ... and moving eqipment at the earliest date during freeze-up while avoiding disturbance of the tundra surface. (Au)

L-25640
Factors affecting use of winter roads during spring thaw / New Brunswick. University. Muskeg Research Institute.
[Calgary : Distributed by APOA], 1973.
1 microfiche : ill., figures ; 11x16cm.
(APOA project no. 48 : Documentation of vehicular traffic on Mackenzie Delta tundra - 1972. Freeze-up and 1973 thaw. Report, no. 3)
ACU, NFSMO

... In the interest of avoiding unnecessary environmental disturbance ... it is important to schedule the commencement of winter road preparation in such a way that ground conditions are taken into account. ... This part of the report describes the results of an experimental operation carried out to evaluate the application of a Rolligon RD85 vehicle in preparing a winter road on Richards Island ... and moving equipment at the earliest date during freeze-up while avoiding disturbance of the tundra surface. (Au)

L-27448
Dempster Highway interim management plan / Dempster Highway Working Group.
[Whitehorse? : Dempster Highway Working Group?], 1978.
[35] leaves : map ; 28cm.
Appendices.
References.
ACU

... It is the aim of the Governments of Yukon and the Northwest Territories to develop a long-term management policy for the Dempster corridor which considers all forms of land and resource use and which guides development in adjacent areas. It is necessary at this point to deal with existing use of the corridor on an interim basis until sufficient data and information are available to allow rational decisions with respect to a more comprehensive, long-term management policy. The purpose of this report is to present and rationalize, within the data limitations, interim management alternatives. (Au)

L-27472
Mackenzie River investigation : proposed navigation channel improvements, final report / Canada. Dept. of Public Works. Western Region. Design and Construction Branch. Marine Directorate.
[Ottawa : Design and Construction Branch, Marine Directorate], 1976.
4v. : maps (part. fold.), figures, tables ; 29cm.
Contents: - v.1 Report. - v.2 Low water determinates. - v.3 Test drilling program - v.4 Plans ; 29x48cm.
References.
ACU

The purpose of the Mackenzie River Investigation is to arrive at a definitive cost estimate, timing schedules, and environmental impact of the overall dredging program proposed on the Mackenzie River by the Northern Transportation Company Limited as required by Treasury Board for their decision criteria. ... (Au)

L-27545
Statistical study of passage into the Beaufort Sea via Point Barrow / Wilson, S.E.G.
[Calgary : Distributed by APOA], 1977.
2 microfiches : figures, tables ; 11x16cm.
(APOA project no. 113 : Passage into Beaufort Sea via Point Barrow. Report)
Appendices.
References.
ACU, NFSMD

The purpose of this study was to determine the probability of successfully transporting a large, deep draft vessel from the Pacific Ocean, via Point Barrow, Alaska, to MacKenzie Bay in the Southeast Beaufort Sea, during any given summer season. Specifically, the purpose was to evaluate transportation through those areas where the transportation depends on sea ice conditions, for minimum water depths of 20, 30, and 40 feet. ... For the most realistic cases (i.e. 3 knots in open water, 2 knots in 1 to 3 tenths ice cover, 1 knot in 4 to 6 tenths ice cover, 0 otherwise, for minimum water depths of 20, 30, and 40 feet) the simulations showed success in every year but 1975, of the 16 years 1962 to 1977, inclusive, for a probability of success of 94%. This compares well to the estimates of experienced people, who suggested probabilities of success between 88% and 97%. The simulations confirm the expected result that the higher the vessel speed, the lower the minimum water depth, and the greater the capacity for travel through ice, the greater will be the success rate for a given starting date, and the shorter the average travel time. (Au)

L-29602
Benefit cost analysis of winter operation of the Dempster Highway / Quadra Economic Consultants Ltd. Trimac Consulting Services Ltd. Y.T. Dempster Highway Management Committee.
[Vancouver, B.C. : Quadra Economic Consultants Ltd.], 1979.
1 vol. (various paging) : ill., map, tables ; 29cm.
Prepared for the Dempster Highway Management Committee.

The primary concern of this study is to compare the cost of moving goods and people to and from the Mackenzie Delta communities under conditions when the Dempster Highway is maintained and open year round and when it is not maintained or open in the winter. While the analyses will determine which operating regime would make the most efficient contribution to the movement of goods and people to and from the Delta area the uppermost questions revolve around costs and problems associated with winter operation. The analyses should include all savings and costs identifiable in both the public and private sector. (Au)

L-29947
Immediate effects of wheeled vehicle traffic on tundra during the summer / New Brunswick. University. Muskeg Research Institute. Radforth, J.R. Canada. Arctic Land Use Research Program [Sponsor].
[Ottawa : Dept. of Indian Affairs and Northern Development, 1973].
v, 32p. : ill., photos. ; 28cm.
(APOA project no. 38 : APOA-DIAND transportation study. Report, no. 1)
([Report] - Canada. Arctic Land Use Research Program, ALUR 72-73- 12)
(North of 60)
References.
ACU, NFSMD

Field tests were conducted at Tununuk (Bar C) on Richards Island, N.W.T., in July 1972 to determine the immediate effects on the tundra surface of operating wheeled vehicles during the summer. Four vehicles were operated on four test sites and the sites were photographed and described by use of the MRI Tundra Disturbance Classification System. The results were compared with those of tracked vehicle tests conducted earlier at the same sites. Although the terrain responded differently to different wheeled vehicle types it was apparent that vehicles with large soft tires created less disturbance than tracked vehicles of the same weight. The test sites should be inspected at two year intervals to confirm predictions of long term effects of wheeled vehicle traffic. (Au)

L-29955
Long term effects of summer traffic by tracked vehicles on tundra / New Brunswick. University. Muskeg Research Institute. Radforth, J.R. Canada. Arctic Land Use Research Program [Sponsor].
[Ottawa] : Information Canada, 1973.
iv, 60p. : ill., photos. (part. col.), tables ; 28cm.
(APOA project no. 38 : APOA-DIAND transportation study. Report, no. 2)
(Report - Canada. Task Force on Northern Oil Development, no. 73- 22)
([Report] - Canada. Arctic Land Use Research Program, ALUR 72-73- 13)
Cover title: Effects of summer traffic on tundra.
References.
ACU, NFSMD

In 1970 tests were carried out with tracked vehicles on test sites at Tuktoyaktuk and Tununuk, N.W.T., and at Shingle Point, Y.T. ... During the summer of 1972, the test sites were visited to observe the development of new vegetation on the disturbed ground, and measure changes in rut depth and frost depth in the tracks left by the vehicles. ... The major conclusions of the study are as follows: 1. The amount of vegetative regrowth on a disturbed site is dependent on the level of disturbance initially inflicted upon the site. Lower levels of disturbance result from low numbers of passes and from use of light weight vehicles. 2. Thermokarst is related to disturbance level but, for all terrain types tested, stabilizes within two years following distubance so that the new permafrost table beneath the vehicle rut is roughly equal to its original depth below the undisturbed ground surface. (Au)

L-35912
Canada's research and development imperatives - ice covered waters / O'Rourke, J.C.
(Proceedings - International Hydrographic Technical Conference, 1st, Ottawa, May 14-18, 1979. Ottawa : Canadian Institute of Surveying, 1979, p. 183-236, ill., maps, photos.)
References.
ACU, NFSMO

This paper describes Arctic Research and Development if Canada is to construct and operate the Arctic marine systems necessary if oil and gas is to be exploited in the Beaufort Sea and other Arctic regions within the next ten years. ... R & D must be intensified in five specific areas: 1. To determine optimum design characteristics and performance expectations for large ice-breaker vessels under the full range of possible ice conditions that can exist throughout the Canadian Arctic; 2. To develop techniques which give high resolution measurement of ice properties and conditions from earth satellites in all weather and in darkness; 3. To develop new concepts and practical field methods to break up high strength ice forms such as ice ridges, multi-year ice floes, and ice islands; 4. To obtain improved understanding on the effect of oil in Arctic waters; 5. To develop improved concepts and systems to clean up oil in ice-covered waters. ... A broad spectrum of new technology will be developed peculiar not only to Canada's Arctic needs but to the needs of all polar development. (Au)

L-35971
Proceedings - Symposium on Marine Transportation and High Arctic Development : Policy Framework and Priorities, Montebello, P.Q., 21-23 March, 1979 / Symposium on Marine Transportation and High Arctic Development : Policy Framework and Priorities, Montebello, P.Q., 21-23 March, 1979.
Ottawa : Canadian Arctic Resources Committee, 1979
viii, 271p. : ill., maps ; 28cm.
ISBN 0-919996-10-8
Symposium chaired by M.J. Dunbar.
Introduction by Hugh G. Morris, chairman of the Advisory Committee to CARC :"Arctic seas project".
ACU, NFSMO

This symposium is designed to focus national attention on the opportunities and problems connected with the development and operation of marine transportation systems as an essential component of the future social, economic, and political development of arctic Canada. In so doing, we hope to explore the adequacy of our knowledge and our policies as they apply to arctic regions and, if possible, to throw a strong light on areas where both should be improved. ... (Au)

L-36242
The Dempster : road to riches ... or ruin? / Renaud, R.
(Alaska journal, v. 10, no. 1, Winter 1980, p. 14-21, ill., map, photos. (part. col.))
ACU

... the Dempster, was officially opened to year-round traffic on August 18, 1979 - despite warnings from environmental groups who say the move could well mean the extinction of one of the continent's last major caribou herds. ... Slicing 700-odd kilometers (453 miles) through some of the most ecologically fragile and savagely beautiful terrain in the world, the Dempster links Dawson City, Yukon, with Inuvik, Northwest Territories .... Crossing both the Ogilvie and Richardson mountain ranges, the highway bisects the migratory route of the Porcupine herd of Barren Ground caribou. This herd represents 10% or perhaps as much as 15% of North America's total caribou population .... Little or no thought ... has been given to the adverse effect of summer tourist travel on the populations of peregrine falcons, gyrfalcons and Dall sheep in the area. The falcons ... nest along the Dempster during the summer. They would be easy prey for poachers anxious to secure the high prices offered for the birds on the foreign black market. The sheep, too, would be particularly susceptible to interference because they would have just finished lambing as the summer traffic begins ... Cautions about the adverse effect of the proposed Dempster Lateral pipeline have already begun. ... The latest declarations by the Yukon government suggest little concern for the impact of the highway on wildlife, and scant interest in the arguments of environmentalists. ... large numbers of tourists can be expected to follow the route because of the heavy publicity it has received. The Dempster's existence itself will likely be used to justify further development along the corridor. The fate of the caribou, falcons, sheep and other wildlife hangs precariously in the balance as the controversy over environmental and developmental concerns shows all the signs of becoming a confrontation. (Au)

L-48666
Arctic ice trafficability : Beaufort Sea area / Hammond, C.W.
[Calgary : Distributed by APOA], 1980
1 microfiche ; 11x16cm.
(APOA project no. 46 : Arctic ice trafficability. Report, no. 2)
Original publisher: Sun Oil Company Exploration Research.
Footnotes.
ACU, NFSMO

The objective of this study was to determine the feasibility of utilizing standard aerial photography to map routes across the ice for various vehicles, including a hovercraft in particular. ... It has been demonstrated that features of a size to be a hindrance to vehicular traffic can be readily seen on conventional black-and-white photography taken from an altitude of 10,000 feet. It has been demonstrated that areas can be delineated that run from smooth and unobstructed to impassable. ... (Au)

L-54020
Ice-maiden voyage / Lawrence, A.
(Canadian shipping and marine engineering, v. 50, no. 11, Aug. 1979, p. 28-32, map, photo.)
ACU, NFSMO

This report describes the performance of the Pierre Radisson during its shakedown voyage through the Canadian Arctic Islands, July 10-Oct. 28, 1978. (ASTIS)

L-54054
Propeller repair under the Arctic.
(Canadian shipping and marine engineering, v. 51, no. 12, Sept. 1980, p. 6-7, photos.)
ACU, NFSMO

This brief report explains how the Canmar Kigoriak damaged the blades of its LIPS CP propeller and shows how the damaged sections were removed and replaced on-site under the ice. (ASTIS)

L-55204
Special Haul Road issue.
Barrow, Alaska : North Slope Borough, 1979.
16p. : ill., maps, photos. ; 28cm.
(Arctic coastal zone management newsletter, no. 17, Jan. 1979)

Partial contents: Who will control the Haul Road: an important test of the Borough's homerule powers / by Earle Finkler.
ACU, NFSMO

The Haul Road was originally built as an energy development road to accompany the construction of the Trans-Alaska Pipeline. Now it is the center of controversy, particularly between the North Slope Borough Commission, who want it to remain an industrial road prohibiting regular public use, and those who want an unrestricted wide-open policy. This issue points out the environmental, economic and social impacts forseen by the NSB if the road is opened and discusses the ongoing conflicts and negotiations between the two sides. Similar problems are also foreseen for the Dempster Highway from Inuvik to Dawson City. (ASTIS)

L-74063
Loran-C and Omega navigation system tests in the Beaufort Sea / Mortimer, A. Milner, P.
Sidney, B.C. : Institute of Ocean Sciences, 1980.
iv, 84p. : ill., figures, tables ; 28cm.
(Pacific marine science report, 80- 4)
Appendix.
References.
ACU

This report describes Loran-C skywave reception in the Beaufort Sea. The accuracy of Loran-C positions using this mode of reception is evaluated. Omega reception was also monitored in the Beaufort Sea and the accuracy of positions obtained with an MX1105 Satnav/Omega receiver are given. (Au)

L-88943
Canol Road dilemma : is easy access spoiling Yukon's old pipeline route? / Hancock, L.
(Canadian geographic, v.102, no. 2, Apr./May 1982, p. 50-57, col. ill.)
ACU

The author describes the Canol Road as it appears today. The character of the road has changed from a project conceived by the U.S. War Dept. to provide a secure source of oil for the defense of Alaska in the event of a Japanese invasion, to a tourist route where today hikers, canoeists, hunters and naturalists congregate to enjoy the areas natural beauty. The effect that renewed interest in the area will have on the environment is of importance to the author. (ASTIS)

L-102130
The impact of new highways upon wilderness areas / Jackman, A.H.
(Arctic, v. 26, no. 1, Mar. 1973, p. 68-73, map)
ACU

L-103470
Snow and ice roads : ability to support traffic and effects on vegetation / Adam, K.M. Hernandez, H.
(Arctic, v. 30, no. 1, Mar. 1977, p. 13-27, figure, tables)
ACU

L-108413
Implications of ship's tracks for Inuit travel, ice thickness and ice growth acceleration in the Canadian Beaufort Sea / Beaufort Environmental Support Services Ltd. Cornett, D.S. MacWatt, D. Dome Petroleum Limited [Sponsor].
Tuktoyaktuk, N.W.T. : Dome Petroleum Ltd., 1982.
1 microfiche : figures ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWT04)
The references and appendix A (photographs) and appendix B. (B.E.S.S. Report) are omitted.
ACU, NFSMO

The expected increase in ship traffic associated with continued offshore exploration and production activities has caused concern among the members of northern communities. It has been suggested that a ship's track may create a serious obstacle to over ice travel by snowmobile. A field programme was initiated by Dome Petroleum Limited, Arctic Pilot Project and Gulf Canada Resources to examine the tracks made by the icebreaker Kigoriak. Members of the Inuit communities were invited to participate and representatives from Sachs Harbour, Paulatuk, Holman Island, Tuktoyaktuk, Grise Fjord, Arctic Bay, Pond Inlet, and Inuvik, conducted the field investigations. Field programmes were conducted .... [and] It was decided by the representatives of the northern communities that the ship's tracks presented much less of a problem than had been anticipated. It was found that when a route was selected with reasonable caution, refreezing of the track was not necessary for safe crossing. The snowmobile and loaded sled on a ship track appeared to be supported by the buoyancy of the considerable thickness of broken ice left in the track rather than by the track's structural strength resulting from its refreezing. The track was crossed on foot within 100 m of the moving icebreaker and within a half hour of its passage. Track crossings with a snowmobile and sled were made within an hour and a half of the ship's passage. Ice thickness profiles showed the ice in the tracks to be thicker on successive tests and thicker than the surrounding ice cover. Reasons for the accelerated ice growth in ship's tracks are discussed. Thermistors installed to give temperature/depth profiles indicated that the rate of refreezing in ice rubble is much faster than the rate of freezing in undisturbed ice. Recommendations are made for further investigation. (Au)

L-112852
Northern transportation / Giuliani, M.
(North/Nord, v. 29, no. 4, Jan. 1983, p. 36-41, ill., map)
ACU, NFSMO

... A major Northern Transportation Conference held 5-7 October 1982 in Whitehorse, Yukon, gathered together representatives of government, industry and interest groups to discuss the challenges facing northern transportation in general and a number of related issues. Sponsored by the Canadian Transportation Research Forum, two federal departments, Transport Canada and Indian Affairs and Northern Development, and the governments of the Northwest and Yukon Territories, the conference sessions focused on: challenges of the 80's, economic, environmental & social considerations, transportation planning, regulatory webs, air transportation operations, delivery of northern natural resources, surface transportation operations, transportation research, marine transportation operations. ... [This article provides] brief descriptions [of] ... some of the papers presented during the three-day conference. ... (Au)

L-113530
A review of road related wildlife problems and the environmental management process in the north / Donihee, J. Gray, P.A. N.W.T. Dept. of Renewable Resources.
Yellowknife, N.W.T. : N.W.T. Renewable Resources, 1982.
v, 20 p. : figure ; 28 cm.

(Information report - N.W.T. Renewable
Resources, no. 2)
References.
Paper presented at Resource Roads Workshops,
Whitehorse and Yellowknife, 16-20 March, 1981.
ACU

Road development potentially can cause significant direct and indirect impacts on wildlife and wildlife habitat. To avoid or minimize detrimental effects associated with road development, wildlife resource concerns must be incorporated during the initial planning stages of development. Three classes of impact reduction measures exist. Spatial measures seek to avoid areas of environmental importance, while timing measures eliminate disturbance during critical periods of the life-cycle. Operational measures embrace codes of good practice that serve to reduce the overall effects during each development phase. Ignoring or failing to undertake comprehensive environmental programs can result in expensive delays and design changes. (Au)

L-117951
Study of ship ballasting and fluid systems for ice
navigation / Intercan Logistical Services Ltd.
Canada Steamship Lines Inc. Melville Shipping
Limited. Canada. Transportation Development
Centre.
[Montreal, Que.] : Transportation Development
Centre, 1983.
viii, 7 p. : 28 cm.
ACU

This report describes various aspects of a study to identify and analyse the problems of freezing of ship ballast systems in cold climatic conditions and to propose solutions for the purpose of providing the marine industry with criteria and guidelines for designing, constructing and operating efficient ballast systems. Areas of reasearch and development are identified. ... The study deals with tank and piping systems, valves and other components or products, ice ingestion of sea water inlets and it identifies areas of research and development. ... (Au)

L-120596
Beaufort development / Sachs Harbour Trappers
Association. Canada. Federal Environmental
Assessment Review Office [Sponsor].
[Sachs Harbour : s.n.], 1983.
[14] p. : maps ; 28 cm.
ACU

This paper presents comments on the principal tanker routes, and the anticipated effects of sea traffic on sea mammals and surface animals. The effect on the way of life of native peoples and the need for compensation, employment and training is included. A map indicates sea mammal habitat in the Northwest Passage region. (ASTIS)

L-122637
Mackenzie Delta ice road construction /
Betteridge, J.P. Clift, F.W.
(Workshop on Winter Roads, 18-19 October, 1979,
Ottawa, Ontario. / Edited by N.K. Sinha.
Technical memorandum - Canada. National
Research Council. Associate Committee on
Geotechnical Research, no. 129, p. 44-59,
figures, tables)
ACU

Esso Resources Canada Limited's Beaufort exploration drilling program for the winter of 1978-1979 required moving a drilling rig, camp and supplies from Tuktoyaktuk to the middle delta of the Mackenzie River, 40 km west-northwest of Inuvik .... Other commitments for the drilling rig necessitated tight time frames for lease construction, moving the rig, and drilling the well. As a result, 200 km of river ice road had to be built almost three weeks earlier than had been done in previous years. The presentation will highlight the successful completion of this project. Factors discussed are road site selection, ice testing methods and equipment, road and ice bridge construction and equipment, as well as transportation equipment and techniques used to haul the heavy loads associated with this project. (Au)

L-129879
CANMAR Kigoriak - demonstration of arctic
capability / Keinonen, A.J. Duff, J.
(The Seventh International Conference on Port
and Ocean Engineering Under Arctic Conditions.
- Espoo, Finland : Technical Research Centre of
Finland, 1983, v. 2, p. 620-633, figures)
References.
NFSMD

Kigoriak, Canadian Arctic Class 3 icebreaker, designed and owned by Canadian Marine Drilling is a radical departure from conventional icebreaker solutions. It has been tested and it has operated since 1979 in the Beaufort Sea in ice conditions regularly going far beyond its actual ice class including operations in multi-year ice. It has never had any icebreaker assistance nor has it ever lost its capability to operate independtly even having seen some propeller damages to its single propeller due to steel obstacles impinging upon the nozzle. Kigoriak has shown us that present Arctic regulations are not adequate. Also, it has demonstrated convincingly the very good performance of its novel design features, against its not so positive predictions based on ice model tests. This has meant important innovations for the future of icebreaking ship design. (Au)

L-131326
Annual report - Northern Transportation Company
Limited / Northern Transportation Company
(Canada).
[1948?]- .
[Yellowknife, N.W.T.] : Northern Transportation
Company, [1948?].
16, 16 p. : ill. ; 28 cm.
Text in English and French.
Information taken from 1982 annual report.
ACU

Northern Transportation Company Limited is a Canadian company. It was incorporated federally in 1947 and continued under the Canada Business Corporations Act in 1977. The company is a profit-oriented commercial Crown corporation whose primary objective is to provide economic, reliable and comprehensive transportation and related services in Northern Canada and the Arctic. Northern Transportation has provided marine transportation services throughout the Mackenzie River Watershed since 1934, and along the Western Arctic Coast and islands since 1957. Keewatin operations out of Churchill, Manitoba were inaugurated in 1975 and since then the Company has provided resupply services to five communities along the west coast of Hudson Bay and Coral Harbour on Southampton Island. ... (Au)

L-136077
Conventional transportation systems could support
northern development in the 1980's / Whyte,
R.J.
(Proceedings : Northern Transportation
Conference : the challenge of the eighties,
Whitehorse, Yukon, October 5-7, 1982. - [Ottawa
: Transport Canada, 1983?], p. 53-57, figures)
ACU

Esso's history in the Northwest Territories dates back to drilling the discovery well at Norman Wells in 1920 and production from that field is still continuing. ... As a result of our extensive experience in the North, Esso has been instrumental in pioneering and developing technology related to many aspects of Northern Development. For example, in the Beaufort region, artificial island technology has been developed and proven by the construction of 18 artificial islands in water depths up to 19 m. This has given us the confidence that permanent production islands are feasible for offshore development in the Beaufort Sea. In addition, six artificial islands will be constructed and used in the expansion of the Norman Wells oilfield. Transportation systems, such as ice roads and the use of large wheeled vehicles have been developed by Esso for protection of the tundra. (Au)

L-136220
The Dempster Highway and western Arctic development / Hill, D.
(Proceedings : Northern Transportation Conference : the challenge of the eighties, Whitehorse, Yukon, October 5-7, 1982. - [Ottawa : Transport Canada, 1983?], p. p. 136-140, figures, tables)
ACU

The author discusses the impact the Dempster Highway has had on the western Arctic, and presents statistics on Dempster Highway distances, traffic operations, ferry and ice bridge operations, and environmental considerations. (ASTIS)

See Also : C-38830, C-63673, C-126950, D-80420, D-108448, G-92118, G-92150, G-92169, G-108316, I-107026, I-107824, I-124575, I-135623, N-42480, N-75396, Q-35386, Q-37397, Q-43346, Q-54038, Q-57410, Q-72125, Q-87602, Q-87610, Q-93254, Q-93262, Q-93270, Q-106879, Q-106984, Q-108383, Q-108480, Q-108634, Q-114650, Q-114782, Q-116769, Q-136018, Q-136140, Q-136700, R-5940, R-95818, T-119482, V-32816, V-45225, V-65293, V-115860

M - ENGINEERING AND CONSTRUCTION

M-19461
Pad foundation design and performance of surface facilities in the Mackenzie Delta / Auld, R.G. Robbins, R.J. Rosenegger, L.W. Sangster, R.H.B.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- , v.1, p. 765-771, figures, table)
References.
ACU

... Imperial Oil Limited has found a thermal simulator model to be a useful design tool in assessing the thermal behaviour of possible foundation designs. The accuracy of the thermal predictions is dependent on a knowledge of the ice content of the permafrost, the ambient environmental conditions, and the thermal properties of the foundation materials and the subgrade. The design, construction, and subsequent thermal performance of several foundations built on permafrost will be presented, including fuel tankage for both ambient and heated fluids, and heated structures, where temperature data has been recorded to monitor the thermal response. (Au)

M-19500
Foamed sulphur insulation for permafrost protection / Raymont, M.E.D.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- , v.1, p. 864-869, ill., figures, table)
References.
ACU

.,. Using pilot plant equipment, sulphur foam was installed in August, 1974 at a site along the Dempster Highway, N.W.T. to test its utility for permafrost protection. Monitoring since the installation has indicated that the foam has fulfilled expectations. ... Predictive thermal analysis of the design confirms field test data. ... (Au)

M-22560
[Papers] - Conference on Construction in Canada's North, Ottawa, May 4, 1973 / Conference on Construction in Canada's North, Ottawa, May 4, 1973. American Association of Cost Engineers. Canadian Sections.
[Ottawa : American Association of Cost Engineers, Canadian Sections, 1973].
1v. (various pagings) : figures, maps ; 28cm.
ACU

Papers were concerned with gas pipeline construction, highway construction in the Mackenzie Valley area ano the James Bay project in Quebec (ASTIS)

M-39160
Performance evaluation of an arctic sewage lagoon / Miyamoto, H.K. Heinecke, G.W.
(Canadian journal of civil engineering, v. 6, no. 2, 1979, p. 324-328, ill.)
References.
ACU

... The objective of this study was to evaluate the performance of lagoons in arctic regions by a study of the lagoon at Inuvik, N.W.T., over a 1 year period. Results of this study endorse the continued use of sewage lagoons as an effective and low-cost sewage treatment method for small arctic communities. In spite of some serious design and construction deficiencies, and several-fold increase in loading, the Inuvik lagoon has provided reasonable treatment at minimal cost over the past 15 years. Its ability to sufficiently reduce bacterial loads to the receiving stream must, however, be seriously questioned. (Au)

M-56480
New approaches to water and sewer services in permafrost area - Norman Wells, N.W.T. / Irwin, W.W.
(Proceedings - Symposium on Utilities Delivery in Northern Regions, 2nd, Edmonton, March 19-21, 1979. Canada. EPS. Water Pollution Control Directorate. Economic and technical review report, EPS-3-WP-80- 5, p. 507-542, ill., figures, photos.)
ACU

... This paper is an attempt to provide a brief overview of the design considerations; the development of system concept and design details; the construction techniques and problems, and the post-construction performance of the Norman Wells water and sewer system installed during the period from 1976 to 1978. (Au)

M-56928
Thermodynamic analysis of the water distribution system in Inuvik, N.W.T. / Hull, J.A.
(Proceedings - Symposium on Utilities Delivery in Northern Regions, 2nd, Edmonton, March 19-21, 1979. Canada. EPS. Water Pollution Control Directorate. Economic and technical review report, EPS-3-WP-80- 5, p. 332-346, figures, maps)
ACU

This paper describes the various types of utilidors used in Inuvik, and problems encountered with freeze protection. (ASTIS)

M-56936
Waterworks systems, Yellowknife, Northwest Territories / Prentice, J.R. Srouji, G.A.
(Proceedings - Symposium on Utilities Delivery in Northern Regions, 2nd, Edmonton, March 19-21, 1979. Canada. EPS. Water Pollution Control Directorate. Economic and technical review report, EPS-3-WP-80- 5, p. 409-425)
ACU

This article provides a history of the Yellowknife Water System from 1947 when the "new town" began to grow, until the present. During its evolution much insight into the design and construction of buried utilities in the north has been gained with the ultimate goal being to provide a unified and comprehensive water system for the entire city of Yellowknife. (ASTIS)

M-73156
Arctic housing update / Goliger, G.
(Habitat, v. 24, no. 1, 1981, p. 24-29, ill., photos.)
ACU

An overview of native housing policy and architectural problems pertaining to the Canadian Arctic combine to reveal the present native housing situation and plans for future improvement. (ASTIS)

M-94510
Stress orientations from borehole wall fractures with examples from Colorado, east Texas, and northern Canada / Gough, D.I. Bell, J.S.
(Canadian journal of earth sciences, v. 19, no. 7, July 1982, p.1358-1370, figures, table)
References.
ACU

... Three examples are given of principal stress orientations inferred from borehole breakouts. ... In the Norman Wells area of northern Canada, northwest-southeast aligned breakouts suggest a contemporary horizontal principal compression closely parallel to natural, probably hydraulic fractures of Laramide age in a subsurface limestone reservoir. The inferred principal stress axes are consistent with the structural evolution of this area, and extend the evidence for coherent stress orientation in western Canada from southern Alberta to Norman Wells, a distance of 1900 km. (Au)

M-114170
Design and performance of the Inuvik, N.W.T., airstrip / Johnston, G.H.
(The Roger J.E. Brown memorial volume : proceedings of the Fourth Canadian Permafrost Conference, Calgary, Alberta, March 2-6, 1981 / Edited by H.M. French. NRCC - Canada. National Research Council, no. 20124, 1982, p. 577-585, figures, tables)
Also available as: DBR paper, no. 1069 and NRCC - Canada. National Research Council, no. 20766.
References.
ACU

The Inuvik airfield was constructed betweeen 1956 and 1958 on a site underlain by frozen fine-grained soils containing considerable quantities of ice. Its design and performance were therefore of considerable concern. The airfield consists of an embankment of rock fill constructed on the undisturbed ground surface to a thickness sufficient to prevent, or minimize, thawing of the frozen subgrade soils: from 2.5 to 4.2 m, and averaging about 3 m. The airfield was paved with asphaltic concrete in 1969. Ground temperatures were measured at several locations in the subgrade and the embankment from 1958 to 1974. All temperature observations showed that the permafrost table moved up at least 0.6 m into the fill after construction was completed in 1958 and remained at about the same level in subsequent years, even after paving. The airstrip has performed extremely well to date and has required little maintenance work. (Au)

M-133132
Instrumentation systems for a cold ocean test structure / Jones, J.M.
(C-CORE publication, no. 81- 6, p. 35-65, figures)
(Technical report - Memorial University of Newfoundland. Centre for Cold Ocean Resources Engineering)
References.
ACU, NFSMO

The fundamental function of an instrumentation system for a Cold Ocean Test Structure will be to identify and measure the magnitudes of the environmental forces acting on the structure, to evaluate its performance in respect to assumptions made in its design and to develop ice monitoring and management procedures. The geographic area of immediate interest is the Beaufort Sea .... The greatest environmental hazard to a structure in this area will be the consolidated multi-year ice ridge. ... Two types of structures have been proposed by drilling operators to resist the force exerted by these multi-year ridges: the conical monopod and the large caisson type, both of which are intended for year-round production drilling operations. ... (Au)

See Also : C-38830, C-68225, C-83194, C-83860, C-121991, C-122521, E-39594, G-5460, G-26476, G-45381, G-55425, G-72133, G-107271, G-122327, G-122483, G-122670, G-127345, G-133124, G-138550, J-47120, L-19488, L-27472, L-117951, Q-5444, Q-18783, Q-24449, Q-35386, Q-83852, Q-83879, Q-83887, Q-83895, Q-83909, Q-83917, Q-83925, Q-83933, Q-83941, Q-83950, Q-83968, Q-83976, Q-84123, Q-87599, Q-91480, Q-127140, R-5940, S-45977

N - RENEWABLE RESOURCES

N-6238
Some ecological and human consequences of hydroelectric projects in the Mackenzie River drainage system, northwestern Canada / Gill, D.
(Consequences of economic change in circumpolar regions / Symposium on Unexpected Consequences of Economic Change in Circumpolar Regions, Amsterdam, March 21-22, 1975. Occasional publication - Alberta. University. Boreal Institute for Northern Studies, 14, p. 73-82, map)
References.
ACU

... The purpose of this paper is therefore to call attention to the following: 1. Ecological alterations can and have already occurred below large hydroelectric projects in northern rivers; 2. Northern floodplains and deltas are most subject to downstream regulation-caused damage. Those that remain undisturbed by man create highly productive habitats that are utilized by a significant number and variety of fish and wildlife; it is argued that regulation creates a complex array of mostly detrimental alterations to alluvial habitats, and consequently to the people who still harvest species of wildlife that base their reproductive success on such habitats. ... (Au)

N-7277
Forestry operations in the Canadian Subarctic : an ecological argument against clear-cutting / Gill, D.
Switzerland : Foundation for Environmental Conservation, 1974.
[6]p. : ill., map; 28cm.
(Contribution - Alberta. University. Boreal Institute for Northern Studies, no. 13)
(Environmental conservation, v. 1, no. 2, Summer 1974, p. 87-92)
References.
ACU

Environmental and floristic evidence is presented to show that, after removal of the White Spruce (Picea glauca) and willow-alder (Salix spp.-Alnus crispa) canopies from exposed sites within the boreal woodland of the Mackenzie River Delta, Northwest Territories, Canada, environmental degradation is such that secondary succession of low-arctic tundra heath, mosses, and lichens, takes place. The extreme exposure of cleared sites enables a hardy group of tundra plants to compete with the local flora and invade the previously forested location. (Au)

N-20710
A summary of fisheries data collected for the Land Use Information map series during 1975 and 1976 / Canada. Fisheries and Marine Service.
Canada. Lands Directorate. Canada. Arctic Land Use Research Program. Sutherland, B.G. Golke, W.R.
Ottawa : Dept. of Indian and Northern Affairs, c1978.
iv, 97p. : maps ; 28cm.
(Environmental studies - Canada. Northern Environmental Protection and Renewable Resources Branch, no. 5)
(North of 60)
(Land use information series : user handbooks)
ISBN 0-662-10181-2
Index.
References
Prepared for the Northern Environmental Protection Branch, DINA and Lanos Directorate, Environment Canada.
ACU, SSU

... The Environmental Management Service of Fisheries and Environment Canada has undertaken the preparation of a series of land use information maps as part of the ALUR Program. ... The purpose of this report is to provide such data based on fisheries field operations and literature reviews in order to compliment the map series. The report contains a general description of the river systems sampled and tabular results of fish species, numbers caught, fish maturity, water temperatures and dates of sampling. ... (Au)

N-25860
Domestic whaling in the Mackenzie estuary, N.W.T. / Hunt, W.J.
Winnipeg, Manitoba : Fisheries and Marine Service, [c1979].
iv, 14p. : ill., map, tables ; 28cm.
(Technical report - Canada. Fisheries and Marine Service, no. 769)
(Technical report - Canada. Fisheries and Marine Service. Western Region, no. 110)
References.
ACU

The domestic Beluga hunt in the Mackenzie estuary was surveyed during the period 1973 to 1975. The number of whales harvested totaled 165, 113-118 and 127-139 for each respective year. In addition it is estimated that a number equal to two-thirds of those landed are killed but not retrieved by hunters. This is mainly due to the present hunting practises being used. Suggested improvements in hunting techniques are listed in the text and a description of the traditional and modern hunt is provided. (Au)

N-42480
Interactions between wildlife, trapper-hunters and seismic lines in the Mackenzie valley region, N.W.T., Canada. Part I: Aubry-Colville lakes / R and R Research Limited. Riewe, R.R. Canada. Arctic Land Use Research Program.
Ottawa : Dept. of Indian and Northern Affairs, 1979.
(Environmental studies - Canada. Northern Environmental Protection and Renewable Resources Branch, no. 9)
(North of 60)
Prepared for the Arctic Land Use Research Program, Northern Environmental Protection and Renewable Resources Branch.
ACU, SSU

The objective of this study was to determine if and how the distribution and movement of game and fur-bearing animals are affected by seismic lines. As a corollary, the study was to ascertain to what extent seismic lines are used by trapper-hunters in preference to traditional routes. In order to obtain this information, it was necessary to first examine the effects of seismic lines upon the vegetation and small mammals which support the game and fur. This study was conducted in the vicinity of Aubry and Colville Lakes, N.W.T. ... 27 May to 31 August 1976, 7 April to 10 May 1977 and 1 to 24 August 1977. ... I have seen no evidence that seismic lines in the area benefit the wildlife or the trapper-hunters of Colville Lake. On the other hand, I find it difficult to believe [they] ... have reduced the carrying capacity of the region for the fur-bearers or game animals. It is difficult ... to predict ... accumulative effect ... (particularly for caribou) if additional seismic operations were conducted. ... (Au)

N-75396
Interactions between wildlife, trapper-hunters and seismic lines in the Mackenzie Valley region, N.W.T., Canada. Part II : Fort McPherson / Canada. Northern Affairs Program.
Ottawa : Indian and Northern Affairs Canada, Northern Affairs Program, 1980.
iv, 28p. : figures, table ; 28cm.
(Environmental studies - Canada. Northern Environmental Protection and Renewable Resources Branch, no. 12)
ISBN 0-662-10795-0
The first part of this study was conducted in the Central Mackenzie Valley Region in the vicinity of Aubry-Colville Lakes.
References.
ACU

... The use of seismic lines by trapper-hunters varies from one physiographic unit to another. In the Delta, trappers occasionally follow lines but only for short distances. Snowmobile travel on the lines in the southern portion of the Delta is restricted because of high channel banks. The river channels are the most important travel routes in the Delta. Neither are seismic lines used on the barren slopes of the Richardson Mountains nor on the exposed uplands of the Peel Plateau. The major river valleys dissecting the Plateau provide access routes to the mountains. On the Peel Plain, however, trapper-hunters often use seismic lines as travel lanes because they save the traveller the trouble of cutting trails through the bush. (Au)

N-78514
Renewable resource development in the western NWT : annotated bibliography / McCracken, C.
Canada. Northern Social Research Division.
[s.l. : s.n.], 1978.
1v. (unpaged) ; 35cm.
Draft copy.
ACU

Listing of references, most with brief notes, on unpublished reports, Department of Indian Affairs and Northern Development internal reports, and published material covering renewable resource economic activities. (NPB)

N-79138
Investigating whether a large development can be environmentally compatible : the Slave River Hydro Feasibility Study / Grover, B.   Primus, C.
(Canadian water resources journal, v. 6, no. 3, 1981, p. 47-62, figures)
References.
ACU

A feasibility study is currently underway in Alberta to assess a possibile hydroelectric development of the order of 2000 megawatts on the Slave River. In light of the hydro potential of the Slave River, this paper discusses certain principles underlying the environmental aspects of the feasibility study and outlines some provisional findings at the interim stage of the study. (Au)

N-89885
Resource management strategies and regional viability : a study of the Great Slave Lake region, Canada / Pearson, R.W.
[Chicago] : Dept. of Geography, University of Illinois, 1970.
242 p. : tables ; 29 cm.
Bibliography: p. 229-241.
ACU

This study has two major objectives, ... to develop a concept of regional geographic viability applicable to a present day analysis, and ... to apply the concept to a particular area, the Great Slave Lake region of the Canadian Northwest Territories. Secondary consideration is given to resource management strategies of important groups, particularly the Federal Government, in terms of their influence on the present status of viability in the Great Slave Lake region. [Employment is discussed in terms of the industrial pattern, the economic structure of industry and settlement, and the ethnic and settlement patterns. The latter shows] .... a low level of Native permanent employment ... a high level of Non-Native permanent employment ... and a concentration of unemployment in the settlements of Fort Providence and Fort Resolution ... as opposed to Fort Smith and Hay River ... (Au)

N-93246
Renewable resources of the Beaufort-Mackenzie Delta region : reindeer ranching and muskox research.
(Beaufort, v. 2, no. 1, Aug. 1982, p. 10-13, ill.)
ACU

Apart from the oil industry activities, the Mackenzie Delta and Beaufort Sea region has also been the scene of various commercial enterprises during the past 90 years based upon the harvesting of the north's renewable resources. ... One of the success stories in harvesting renewable resources is the domestic reindeer herd located in the Mackenzie Reindeer Grazing Reserve. This reserve covers approximately 46,620 square kilometres (18,000 square miles) and includes within its boundaries all of the present major oil industry shorebases, including the operations at Tuktoyaktuk and McKinley Bay, and various onshore drilling sites such as Atkinson Point, Mayogiak, Parsons Lake and others. ... there is another northern wild mammal that may have similar potential for resource harvesting. That mammal is the muskox .... The muskox has been thriving on Banks Island in the Beaufort Sea, so much so that the species may be over-populating the large, 38,850 square kilometre (15,000 square miles) island .... An experimental harvest of the animal took place on Banks Island in 1982. Approximately 100 animals were harvested over three days .... The early indications from the experimental harvest at Banks Island, and the research underway at the University of Saskatchewan, point to the feasibility of muskox herding. Both the meat and wool of the muskox are high quality and either, or both, may be marketable. Within a few years it may be possible to create a northern muskox herd, providing employment for northern residents. (Au)

N-124001
The rise and decline of agriculture and horticulture in the Mackenzie District and the Yukon / Mackinnon, C.S.
(The musk-ox, no. 30, 1982, p. 48-63, figures)
References.
ACU

The constraints on agriculture north of sixty degrees in Canada have been more economic than climatic. Fur traders and missionaries developed small farms at posts mainly in the Mackenzie Valley. Also, miners in the Klondike were supplied with some local vegetables. However, each improvement in transportation from the south lessened the economic viability of northern agriculture. Therefore the Federal Government has been relatively slow in selling crown land to individuals. Also, the Territorial Governments have not provided the subsidies to agriculture given by provinces. (Au)

See Also : C-14532, C-14540, C-14559, E-15598, E-138126, R-95613, S-69892, T-15512, T-35602, T-89907, T-99058, V-24155, V-54402, V-57070, V-115860

P - MINING

P-16080
Arsenic in the Northwest Territories / Hornby, I.
[S.l. : s.n.], 1978.
4 leaves ; 28cm.
Title varies: Arsenic in Yellowknife.
ACU

Discusses the various studies made on the arsenic levels in Yellowknife, and lists recommendations to lower the arsenic content in the air, water and soil. This arsenic pollution is possibly related to activities of nearby gold mines. (ASTIS)

P-19615
The effects of metal mines on aquatic ecosystems in the Northwest Territories. II. Giant Yellowknife Mines Limited / Moore, J.W. Wheeler, S.J. Sutherland, D.J.
[Edmonton] : Northwest Region, Environmental Protection Service, Fisheries and Environment Canada, 1978.
vii, 58p. : figures, maps, tables ; 28cm.
(Surveillance report - Canada. EPS. Northwest Region, EPS-5-NW-78- 9)
Appendices.
References.
ACU

A biological, sediment and water quality survey was conducted ... to determine the impact of the operations of Giant Yellowknife Mines Ltd. on Baker Creek and Yellowknife Bay. The discharge of effluent from the tailings ponds of the mine has caused a marked elevation in the concentration of toxicants in Baker Creek water. ... The sediments of Yellowknife Bay contained high levels of toxicants up to at least 3 km from the mouth of Baker Creek. ... (Au)

P-19623
The effects of metal mines on aquatic ecosystems in the Northwest Territories. I. Canada Tungsten Mining Corporation Limited / Moore, J.W. Hardin, M.J. Sergy, G.A.
[Edmonton : Northwest Region, Environmental Protection Service, Fisheries and Environment Canada, 1978.
ix, 83p. : figures, maps, tables ; 28cm.
(Surveillance report - Canada. EPS. Northwest Region, EPS-5-NW-78- 8)
Appendices.
Bibliography: p.46-49.
ACU

The effects of the operations of the Canada Tungsten Mining Corporation Limited on the waters, sediments and biota of the Flat River were studied .... While the concentrations of heavy metals in waters upstream and downstream of the mine were generally similar during the study period, elevated concentrations of heavy metals were measured in the sediments as far as 20 km downstream of the operation. ... Effluent discharged from the tailings area into an unlined excavation was shown to be acutely lethal to fish under laboratory bioassay conditions. ... (Au)

P-25828
Development of an arsenic measurement method on a gold roasting operation / Capowski, R.
[Edmonton] : Environmental Protection Service, Northwest Region, 1976.
v, 55p. : figures, tables ; 28cm.
(Technology development report - Canada. EPS. Northwest Region, EPS-4-NW-78- 1)
Appendices.
References.
ACU

Source tests carried out at the roaster stack of Giant Yellowknife Mines Ltd. were undertaken to verify the applicability of "Standard Reference Methods for Source Testing: Measurement of Emissions of Particulates from Stationary Sources" to the controlled release of arsenic from the roaster off-gas dust control system. Tests for sulphur dioxide were also conducted. A brief description of the ore roasting process and off-gas dust control system is provided. The stack sampling and analytical methods are also summarized. It is recommended that further testing for arsenic be performed on a controlled source to validate recommended changes to the source testing code. (Au)

P-37621
The Pine Point Mine / Macpherson, J.E.
(Northern transitions. Vol. 1. Northern resource and land use policy study / Edited by E.B. Peterson and J.B. Wright. - Ottawa : Canadian Arctic Resources Committee, [c1978], p. 65-110, maps, photo.)
References.
ACU

... The decisions made regarding the mine are analyzed in the context of the federal government's changing policies towards northern development. In particular, the examination of Pine Point is important to illustrate the nature of the government-industry negotiations .... Pine Point also provides a lesson about economic development in an "underdeveloped" region of the North, and the environmental and socio-economic impacts associated with such large-scale projects. Finally, the Pine Point experience confirms the need to consider alternative approaches for resource development in the North .... (Au)

P-45691
Mineral industry report 1975, Northwest Territories / Laporte, P.J. Gibbins, W.A. Hurdle, E.J. Lord, C. Padgham, W.A. Seaton, J.B.
[Ottawa : Indian and Northern Affairs, 1978].
vii, 187p. : ill., figures, maps, photos., tables ; 28cm.
(EGS - Canada. DIAND. Exploration and Geological Services Unit, 78- 5)
(North of 60)
References.
ACU

This report describes mining and mineral exploration in the Northwest Territories (N.W.T.) during 1975. ... For the first time in this series on the N.W.T. we present the results of research into geological problems carried out in cooperation with Canadian universities. ... Each report is presented as a separate chapter. ... (Au)

P-53937
[Northern mineral activity].
(Western miner, v. 53, no. 10, Oct. 1980, p. 14-22, 30-33, ill., map, photos.)
ACU

These reports review initial construction activities at Cominco's Polaris lead-zinc mine on Little Cornwallis Island and at Echo Bay Mines' gold property near Contwoyto Lake, Hudson Bay Mining and Smelting Company Limited's underground exploration at the lead-zinc-silver claims in Tom Valley near MacMillan Pass, Y.T., Amax plans for development of its MacTung tungsten orebody in MacMillan Pass, and Esso's Norman Wells oilfield expansion hearings. (ASTIS)

P-63592
Control of arsenic level in gold mine waste waters / Smecht, L.M. Laguitton, D. Berube, Y.
Ottawa : DIAND, 1975.
iv, 31p. : ill., figures, tables ; 28cm.
([Report] - Canada. Arctic Land Use Research Program, ALUR 74-75- 35)
(North of 60)
Bibliography: p.30-31.
ACU, SSU

The importance of arsenic as a serious pollutant in Canadian gold mining has recently been receiving increasing attention. A critical examination of mining and milling operations at two sites in Yellowknife, N.W.T. has shown that the difficulty has not been completely answered, and the present report endeavours to shed some light on this ecologically-sensitive problem and to present some solutions. ... (Au)

P-89800
The socio-economic implications of gold mine closure in the Yellowknife region / St. Pierre, M. Canada. Northern Economic Development Branch. Regional Planning and Manpower Section.
Ottawa : DIAND, 1972.
v, 65 p. : tables ; 28 cm.
(North of 60)
Appendices.
ACU

The purpose of the study was to analyse the major socio-economic problems that are likely to arise from a cessation of operations of gold mines in Yellowknife. ... It was found that there are three groups of people - home owners, older residents and the native people among the mining fraternity - who might be particularly confronted with special socio-economic problems as a result of the closing of the mines. Their problems might range from their inability to obtain ... employment in Yellowknife, to their unwillingness to move to another region in search of employment. For these people and others who will be unemployed with the closing of the gold mines in Yellowknife, their ability and/or willingness to make use of the Federal Government's special training, mobility and manpower adjustment programs may well be a solution to most of their unemployment problems. (Au)

P-91219
The Pine Point Mine and the development of the area south of Great Slave Lake / Deprez, P.
[Winnipeg] : Center for Settlement Studies, 1973.
xxiii, 137 p. : map ; 28 cm.
(Research report. Series 2 - Manitoba. University. Center for Settlement Studies, no. 16)
Document not seen by ASTIS.
OMMNS

This report includes the effect of Pine Point mine on indigenous employment in the area of Great Slave Lake. (LET)

P-94714
Archean lode gold deposits : a synthesis of data on metal distribution, rare earth elements, and stable isotopes, with special reference to Yellowknife / Kerrich, R.
(Proceedings - Gold Workshop, Yellowknife, N.W.T., 3-7 Dec., 1979, p. 95-171, figures, tables)
References.
ACU

Studies of lode gold deposits in Archean greenstone belts reveal a number of common chemical and fluid-dynamic features. The following results are synthesized from analysis of over 700 samples from Au-bearing vein and stratiform chemical sediments of the Yellowknife, Red Lake, Porcupine and Val d'Or-Malarctic goldfields. The average abundances of selected elements in ppm is Au 10; Ag 2; Pt 0.80; Pd 0.10; As 1200; Sb 700; Cr 160; Ni 110; W 270; Co 40; Cu 50; Pb 30; Zn 80; and V 70. ... In general, the rare and relatively immobile elements (Au, Ag, Pt, Pd, Cr, Ni, W) are enriched in lodes relative to the abundant and mobile base metals (Co, Cu, Pb, Zn, V). This separation may be accounted for if fluids are generated under conditions of low water/rock ratio and high temperature such that the absolute abundance of rare elements in solution is not constrained by solubility, whereas base metal solute concentration is. ... At Yellowknife, detailed two-way chemical mass balance calculations reveal that volume changes accompanying hydrothermal alteration of metabasic wallrocks adjacent to veins are in order of +100 +600%. ... These results, combined with data from other examples of extensive Au-bearing vein systems, enable prediction of the optimum thermal interval for Au precipitation, and the upper cutoff temperature. ... (Au)

P-94730
History of deformation and fluid transport in shear zones at Yellowknife / Allison, I. Kerrich, R.
(Proceedings - Gold Workshop, Yellowknife, N.W.T., 3-7 Dec., 1979, p. 202-222, figures)
References.
ACU

Shear zones transecting the metabasalts of the Yellowknife greenstone belt are the sites of economic lode gold deposits. Three vein systems each with a distinctive geometry and relationship to other structures are present in the shear zones. Each vein system has characteristic geochemical features indicative of differing fluid transport regimes. ... The geometry of their vein systems indicates that all three systems formed by hydraulic fracturing under conditions of very high fluid pressures. The changing conditions are conveniently illustrated by means of Mohr diagrams. (Au)

P-94749
Geology of the southwest end of the Yellowknife greenstone belt / Helmstaedt, H. King, J. Goodwin, J.A. Patterson, J.G.
(Proceedings - Gold Workshop, Yellowknife, N.W.T., 3-7 Dec., 1979, p. 223-237, figures)
References.
ACU

This paper is a preliminary report of a mapping program in the southwestern part of the Yellowknife Greenstone belt during which the mainland part was mapped on a scale of 1:10000 (Helmstaedt et al., 1979) and the islands along the north shore of Great Slave Lake ... were covered on a reconnaissance scale (1:50000). The area was previously mapped on the reconnaissance scale by Jolliffe (1942) and is the southwesterly extension of the detailed map area of Henderson and Brown (1966) .... (Au)

P-94757
Geochemistry of Con Mine, Yellowknife, N.W.T. / Cominco Ltd. Meyers, D.
(Proceedings - Gold Workshop, Yellowknife, N.W.T., 3-7 Dec., 1979, p. 240-257, figures, tables)
References.
ACU

This paper briefly discusses the chemistry of host rocks at Yellowknife, the chemistry of mineralization at Con Mine, and the genesis of Yellowknife gold ores. (Au)

P-94773
Geology of the Yellowknife volcanic belt / Podgham, W.A.
(Proceedings - Gold Workshop, Yellowknife, N.W.T., 3-7 Dec., 1979, p. 288-322, figures)
References.
ACU

The Yellowknife Volcanic Belt, host to the most important gold deposits in the Northwest Territories, lies along the west margin of an extensive supracrustal basin towards the southern exposed edge of the Archean Slave Structural Province of the Canadian Shield ... Since operations at the Con Mine began in 1938, the auriferous quartz-carbonate-sericite-chlorite shear zones and related quartz veins have produced over 10 million ounces of gold. In spite of the extensive geological work in the Yellowknife Volcanic Belt, much remains to be done to solve the many geological problems that have been encountered. (Au)

P-105490
The gold discovery of '38 / Hambly, L.
(North/Nord, v. 29, no. 1, Spring 1982, p. 38-41, col. ill.)
ACU

This article gives the historical background of the Thompson-Lundmark Mine, a gold mine discovered by Fred Thompson in 1938. (ASTIS)

P-106470
Case study of the Camlaren Mine project / McCormack, J.
(Northern mining in the 80s : proceedings of the Northwest Territories Chamber of Mines 'Mining Days 1980', Yellowknife, May 7-8, 1980 / Edited by M.J. Wojciechowski. Kingston, Ont. : Queen's University, 1980, p. 69-77)
ACU

The Camlaren Mine encompasses a small gold-bearing quartz vein structure located on the south end of Muir Island in Gordon Lake approximately 52 miles northeast of Yellowknife. ... At peak activity the property will employ between 60 and 70 persons. It is anticipated that this peak will occur during May and June when mill construction and underground development are ongoing. It is hoped that a high percentage of our employees will come from the Yellowknife area. However, there will be a heavy demand for skilled miners which is unlikely to be filled locally. ... (Au)

P-106488
Case study of the Cadillac property / Hicks, H.B.
(Northern mining in the 80s : proceedings of the Northwest Territories Chamber of Mines 'Mining Days 1980', Yellowknife, May 7-8, 1980 / Edited by M.J. Wojciechowski. Kingston, Ont. : Queen's University, 1980, p. 79-83)
ACU

The Cadillac property is in the Nahanni district, just north of Nahanni Park, 210 miles north of Port Nelson and about 300 miles west of Yellowknife. ... The mining we have planned is the quite conventional cut and fill mining. ... we have taken an option on the former Churchill mill. We are planning a 1,000-ton-per-day production rate. ... The plan is to knock down the Churchill mill this summer and to transport it over the winter road into the camp along with all the necessary supplies and other construction materials. ... The total crew will be 213 people .... We hope ... to recruit as much northern labour as possible and we have been quite assiduously working with the Indian bands, particularly in the two closest villages of Fort Liard and Fort Simpson. The Indian bands have been very forceful on the subject of training and we have assured them that we are planning to institute a training program. ... (Au)

P-111406
Appendix 1. Demographic implications of mineral developments in Canada's north : the Eastern Arctic Study case studies / Wojciechowski, M.J.
(Proceedings, Northern Population Workshop IV : Regional development and the role of population research = Actes du Quatrieme Colloque sur les Populations Nordiques : Developpement regional et role de la recherche demographique / Edited by K. de la Barre. - Montreal : Committee on Northern Population Research, Universite de Montreal, 1983, p. 208-223, figure)
ACU

This paper is an outline of objectives and study methods used in the Eastern Arctic Study of four mineral development cases (Nanisivik, Polaris, Baker Lake, and Beaufort Sea). Notes for each of these developments deal with project description, communities affected, chronology, major issues arising from development, and the environmental, social and economic impacts for each area as a result of resource development. (ASTIS)

P-115428
Macmillan Pass/Howard's Pass task force / Foster, T.
(Northern mining in the 80s : proceedings of the Northwest Territories Chamber of Mines 'Mining Days 1981', Yellowknife, April 8-9, 1981 / Edited by M.T. Wojciechowski. - Kingston, Ont. : Queen's University, 1981, p. 87-90)
ACU

... At an initial meeting on planning for future mineral development in the region held in Whitehorse in December 1980 it was decided ... to set up a 'task force' of key industry and government representatives. ... The purpose of the task force is to provide an industry-government forum for discussion and cooperation to ensure that the mineral deposits in the MacMillan Pass/Howard's Pass regions are developed in an orderly manner and in the best interests of the people. ... In order to facilitate decision making, the task force is operating within well-defined guidelines. ... The task force will discuss and reach agreement-in-principle regarding [:] 1. the standard and location of all the infrastructure, facilities and support services needed for the region, including the rebuilding of the North Canol Road, a permanent access road to the Howard's Pass area, a regional airport, power supply, worker accommodation and training facilities; ... 2. the relative responsibilities of each level of government and each mining company for planning, designing and constructing or implementing the necessary infrastructure and services; ... 3. the funding of the necessary infrastructure and services, including provisions for possible costsharing between government and industry; ... 4. [collecting and compiling] the necessary information for carrying out a preliminary cost/benefit analysis of the proposed mineral developments to justify public expenditures for infrastructure and support services; ... 5. the responsibility to oversee and direct the operation of any subcommittee established by the task force. (Au)

See Also : B-122734, B-122840, B-122890, F-7137, J-4944, J-7129, Q-118184, R-77585, T-106178

Q - PETROLEUM, NATURAL GAS, AND PIPELINES

Q-485
The feasibility of oil spill dispersant application in the southern Beaufort Sea / Hildebrand, P.B.   Allen, A.A.   Ross, C.W.
[Ottawa : Environmental Protection Service. Environmental Impact Control Directorate, 1977].
x, 102p. : tables, graphs ; 28cm.
(Economic and technical review report - Canada. EPS. Environmental Impact Control Directorate. EPS-3-EC-77- 16)
ISBN 0-662-01027-2
Bibliography : p.85-87.
ACU

A review of application techniques of dispersant and physical environments is presented and on the basis of this review, three application platforms appear to be worthy of further study: a heavy-lift helicopter, such as the Sikorsky S-64, the Canadair CL-215, and the Lockheed L-100-30. Dispersants were analyzed for their applicability to the Arctic environment, and it is recommended that concentrate dispersants be examined further. A cost and time analysis of using dispersants in the southern Beaufort Sea is performed. Under "best-case" conditions the total cost to disperse 20,000 cubic metre of oil is calculated to be $10,000,000 over an 8-day operational period. These costs relate only to dispersant purchase, shipping and application, and do not include manpower or ancillary support, such as shelter, food, waste disposal and recovery of empty drums. (Au)

Q-1678
Novel countermeasures for an Arctic offshore well blowout / Arctec Canada Limited. Abdelnour, R. [et al].
[Ottawa] : Dept. of Fisheries and the Environment, 1977.
x, 135p. : ill., maps (part. fold.), graphs, tables ; 28cm.
(Economic and technical review report - Canada. EPS. Environmental Impact Control Directorate, EPS-3-EC-77- 14)
ISBN 0-662-01028-0
Arctec Canada Limited produced this report under contract to the Environmental Emergency Branch.
Bibliography: p. 95-135.
ACU, NFSMO

The problems of cleaning up oil spilled by an offshore well blowout in the Arctic are reviewed. In-situ burning is recommended as the most promising disposal technique. Various techniques are proposed for holding the oil in a burnable layer. In calm conditions a deep-skirted boom may be suitable, but a floating cargo net is shown to be more suitable for up to 80% ice cover. For 80-100% ice coverage, it is demonstrated analytically and experimentally that oil floating amidtst the ice is burnable. In the presence of large floes, techniques for breaking up the ice are proposed to allow gas to escape and oil to be burned. (Au)

Q-2860
Heavy metals project Mackenzie Delta and estuary / Beak Consultants Ltd. Imperial Oil Limited [Sponsor].
[S.l.] : Beak Consultants Ltd., 1978.
4 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE14)
Appendices.
References.
ACU

... This study was conducted ... to investigate and evaluate the environmental significance of heavy metals discharged to the aquatic environment. This was done by documenting the concentration of heavy metals in the surficial and submarine sediments from 45 stations in the vicinity of a post-operational artificial island drilling site (Netserk F-40) and a similar number of stations in the vicinity of ... (Isserk F-27). In addition sediments were sampled in four Mackenzie River delta channels to determine background levels of sediments being transported and deposited in the . estuarine area out from the mouth of the river .... In order to determine if bio-accumulation of heavy metals had occurred, and if so to what extent, samples of benthic invertebrate epifauna and infauna were collected, where possible, at each of the sediment stations. Samples of fish and whale from the Beaufort Sea and vicinity were also analysed for the same series of heavy metals. This report describes the sampling and analytical procedures, documents the findings and interprets the marine environment of the Beaufort Sea. ... (Au)

Q-2950
Dall sheep and their habitat in relation to pipeline proposals in northwestern Canada / Nolan, J.W. Kelsall, J.P. Canada. Wildlife Service.
Ottawa : Canadian Wildlife Service, 1977.
ix, 64p. : ill., maps, tables ; 28cm.
(Mackenzie Valley Pipeline investigations)
Prepared by the Canadian Wildlife Service and funded by the Environmental-Social Program, Ottawa, Government of Canada.
References.
ACU, SSU

The routes of the proposed Mackenzie Valley Pipeline were surveyed in order to identify potential conflicts with Dall sheep (Ovis dalli) or their habitat. Preliminary surveys in 1971 and 1972 identified possible areas of conflict, and more intensive studies were carried out in those areas in 1973. The pipeline route avoids sheep habitat throughout the upper reaches of the Mackenzie Valley. ... No direct destruction of sheep habitat seems likely as a result of pipeline construction, but activities associated with both construction and maintenance of the pipeline might be detrimental to the sheep populations. Additionally, there is concern for a small group of sheep in the Firth River area of the British Mountains. That group is not near a pipeline route, but they are on a natural aircraft flight corridor through the mountains that would be heavily used if the coastal pipeline were built. ... (Au)

Q-2968
Waterfowl populations observed along the proposed gas pipeline route Richards Island to N.W.T.-Alberta border / Poston, H.J. Canada. Wildlife Service.
Ottawa : Canadian Wildlife Service, 1977.
vi, 78p. : maps, tables ; 28cm.
(Mackenzie Valley Pipeline investigations)
Prepared by the Canadian Wildlife Service and funded by the Environmental-Social Program, Ottawa, Government of Canada.
References.
ACU, SSU

A four-mile-wide corridor extending 865 linear miles and including 2300 wetland basins along the proposed Mackenzie Valley gas pipeline route (1973) was surveyed by aircraft to document waterfowl and aquatic bird numbers and species. ... Detailed maps and charts delineate individual and groups of wetlands that provide essential requirements for significant numbers of waterfowls and aquatic birds. These data suggest that pipeline routing does not directly influence the more valuable wetland habitats of the region. (Au)

Q-3263
Some questions about the Arctic gas pipeline / Canadian Arctic Gas Pipeline Limited.
[Toronto] : Canadian Arctic Gas Pipeline Limited, 1976.
1 portfolio : map ; 30cm.
ACU

A folder containing questions and brief answers on the proposed Arctic gas pipeline - its feasibility, environmental aspects, economic benefits, and its impact on the native peoples' land claims. (ASTIS)

Q-3280
Banks Island development environmental considerations : 1974 research studies / Beak Consultants Ltd. Elf Oil Exploration and Production Canada. Panarctic Oils Ltd.
Calgary, Alberta : Beak Consultants Limited, 1975.
3v. : ill., photos., maps (part. fold.), tables, charts ; 29cm.
Prepared for Panarctic Oils Ltd. and Elf Oil Exploration and Production Canada Ltd..
References.
ACU, ACPO

This study was undertaken to assess the possible impact of summer drilling activity on the wildlife and terrain of Banks Island. The report contains an extensive literature review and covers such subjects as: arctic fox, caribou, muskoxen, lemming, snow geese, wolves, polar bear, fisheries and hydrology, and terrain. (ASTIS)

Q-3972
Probable behaviour and fate of a winter oil spill in the Beaufort Sea / NORCOR Engineering and Research Limited.
[Ottawa : Environmental Protection Service, Dept. of Fisheries and the Environment], 1977.
x, 111p. : ill., diagrams ; 28cm.
(Technology development report - Canada. EPS. Environmental Impact Control Directorate, EPS-4-EC-77- 5)
ISBN 0-662-01029-9
References.
ACU

With increasing levels of offshore petroleum exploration in the Beaufort Sea, there is an urgent need to be able to define the behaviour and fate of a major winter oil spill. Much of the drilling activity centers on the area of dynamic ice called the transition zone, between the 20 and 100-m water contours. This report combines data from a 4-months winter field study of ice conditions, with other sources such as AIDJEX and satellite photography. The resulting statistical description of ice conditions in the Beaufort Sea is then used to generate a model of oil disposition under a moving ice sheet in the event of an oil blowout. Major areas for future study are identified as oil migration in multi-year ice, the effects of gas on oil behaviour and hourly ice drift rates. Realistic spring oil migration rates through the ice sheet are applied to a typical set of ice conditions and a rough mass balance estimate is made of oil remaining at the end of the first summer. Oil films are generally thin (<0.5 cm). Based on available ice drift information, less than 15% of the contaminated area could be partially cleaned by burning. Evaporation would account for between 35 and 55% of the oil. By September it is estimated that about 30 to 50% of the original oil volume would remain on the water, ice or shore. (Au)

Q-5037
The Berger Inquiry : an impact assessment process / Gamble, D.J.
(Science, v.199, Mar. 3, 1978, p. 946-952, maps)
References.
ACU

The Mackenzie Valley Pipeline Inquiry, conducted by the Honorable Mr. Justice T.R. Berger, undertook to explore thoroughly the issues surrounding the building of a northern pipeline. In doing so, the Inquiry provided a forum for the interplay of the technical and environmental issues with very personalized social and cultural concerns. As a process, it reached out beyond the direct participants: it became one in which all Canadians, north and south, participated. It touched some of Canada's deepest concerns - concerns about energy policy, resource allocation, the price and priority of industrial development, cultural sovereignty, and self-definition. These have become national concerns, not just regional. And so, no matter what the final decision is about the pipeline, the Inquiry will have a profound and lasting national influence. (Au)

Q-5444
The Beaufort Gas Project surface facilities / McDougall, J.C.
(Proceedings - International Symposium on Cold Regions Engineering, 2nd, University of Alaska, 12-14 August 1976. Edited by John Burdick and Philip Johnson. Fairbanks : Cold Regions Engineers Professional Association and Dept. of Civil Engineering, Univ. of Alaska, 1977, p. 383-400, ill., charts, diagrams)
References.
ACU

In connection with recent natural gas discoveries in the Mackenzie Delta Area of the Northwest Territories, Imperial Oil Limited is planning for the construction of a gas gathering and processing facility. Present production concepts include a series of well clusters from which natural gas will be transported through flow lines to the processing plant. The gas will be processed for entry into a main gas transmission line system. Associated with the plant will be various surface facilities including a dock, airstrip, connecting roadway system and pads. The clusters, flow lines, plant and support facilities are to be located in the flood plain of the Mackenzie Delta. ... The construction of roads, pads and an airstrip involves the placing of fill material in various configurations on permafrost. ... The design of these facilities has required extensive consideration of the thermal and hydrologic regimes in the area. The results of studies dictate that embankments be generally five feet thick with two inches of insulation. Total granular and insulation requirements for the project are approximately 1.5 million cubic yards and 13 million board feet respectively. Current planning and execution of the project are based on completion of construction for the plant, support and surface facilities, coincidental with the completion of the gas transmission line. (Au)

Q-6351
The prolific pipeline : finding oil for Canol / Barry, P.S.
(Dalhousie review, v. 57, no. 2, Summer, 1977, p. [205]-223, map)
ACU

Describes the oil exploration and production conducted in the Mackenzie Valley to provide crude oil for the Canol Project during 1942 to 1945. (ASTIS)

Q-6360
The prolific pipeline : getting Canol under way / Barry, P.S.
(Dalhousie review, v. 56, no. 2, Summer, 1976, p. [252]-267, map)
ACU

Conceived and financed by the U.S. War Department during W.W.II, the Canol project entailed the building of a pipeline to carry crude oil from Imperial Oil's Norman Wells oil field on the Mackenzie River to a refinery at Whitehorse, Yukon where the fuel would be accessible for military traffic on the Alaska Highway and the Northwest Staging route.

Originally estimated to cost $30 million, later figures estimated the cost at $130 million. The rise in cost was attributed to the numerous ancillary projects that were generated in connection with Canol, i.e. the building of roads, construction of accommodations for troops, construction of barges for freighting machinery. (ASTIS)

Q-6394
Learning from the North : a guide to the Berger Report / McCreath, P.L. [et al].
[Toronto] : James Lorimer & Co., [c1977].
70p. ; 28cm.
ISBN 0-88862-164-7
A guide to Northern Frontier, Northern Homeland: the report of the Mackenzie Valley Pipeline Inquiry.
References.
ACU

This guide has been written to assist Canadian secondary school teachers to explore uses of the Berger Report in their classrooms. The Report challenges Canadians to face very serious questions concerning the nature of Canada, the value of its unique environment, the worth of each individual within its borders and the processes of development in its communities and throughout the world. The Berger Report cannot be ignored by the government of Canada. If only for this reason, it should not be ignored by our schools. (Au)

Q-7978
The Report of the Mackenzie Valley Pipeline Inquiry, Volume One : an environmental critique / Bliss, L.C.
(Musk-ox, no. 21, 1978, p. 28-33)
References.
Review of document number 64025.
ACU

... In reviewing the Report, it became evident that Justice Berger developed several scenarios to support his case. These were based on incorrect or inadequate interpretations of much of the data presented, the use of scientific opinion rather than substantiated scientific data, and statements made that were often backed with no data or reference to facts presented to the Inquiry. ... Seldom is the Arctic Gas Consortium given credit for having designed and planned construction of a project based on scientifically sound environmental and ecological data inputs. ... (Au)

Q-7986
The Report of the Mackenzie Valley Pipeline Inquiry, Volume Two : an environmental critique / Bliss, L.C.
(Musk-ox, no. 21, 1978, p. 34-38, tables)
References.
Review of document number 64025.
ACU

The second volume of the Mackenzie Valley Pipeline Inquiry conducted by Justice Berger deals with the conditions and regulations to be imposed if a pipeline were built through the Mackenzie Valley. ... It would seem fair to say that most people would consider the recommendations of the Inquiry to be realistic and to be suitable for reducing the harmful impacts on the environment, as well as promoting a strong traditional economy. The only danger is that the indigenous and other people may be deceived by believing that "living off the land" is more productive than is scientifically demonstrable. (Au)

Q-8532
CANOL : pipeline of brief glory / Woodman, L.L.
(Northern engineer, v. 9, no. 2, Summer 1977, p. 14-28, ill., map)
ACU, NFSMO

... CANOL, with 1,600 miles of pipeline - twice that of the Alaska Pipeline - and 9,000 miles of supply routes, was built in 21 months by 4,000 U.S. Army engineer troops and 10,600 civilian contract employees. It cost about $133,000,000 and was shut down 11 months after it was completed. ... (Au)

Q-9679
Environmental research for Arctic marine operations / O'Rourke, J.C.
[S.l. : s.n.], 1977.
11, [8]p. : figures ; 28cm.
Presented to the Eleventh Congress of the Canadian Meteorological Society, Winnipeg, Manitoba, June 1-3, 1977.
ACU

Brief description of sea ice interaction with marine drilling operations of Dome and CANMAR in the Beaufort Sea and Sverdrup basin. (ASTIS)

Q-9873
The social and economic impacts of Canadian Marine Drilling Ltd.'s 1976 operations on the Beaufort Sea communities / Mary Collins Consultants Limited. Canadian Marine Drilling Limited [Sponsor]. Canadian Marine Drilling Limited [Sponsor];.
Toronto : Mary Collins Consultants Ltd., 1977.
2 microfiches : ill., ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWZ09)
References.
ACU, SSU

A study of the social and economic effects of CANMAR's drilling operations on the communities of Inuvik, Tuktoyaktuk, Aklavik, Sachs Harbour, Paulatuk and Holman. Short-term boom type industrial activities as they affect the native, the non-native northerner and the transient worker are analyzed and suggestions and options for the future are given. (ASTIS)

Q-9881
Social and economic aspects of Dome/Canmar's Beaufort Sea project 1977 / Mary Collins Consultants Limited. Canadian Marine Drilling Limited [Sponsor].
Calgary : Mary Collins Consultants Ltd., 1977.
3 microfiches : ill., tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWZ10)
References.
ACU, SSU

... The focus of this review of Canmar's socio/economic impacts is the seven communities in this region. They are Aklavik, Coppermine, Holman, Inuvik, Paulatuk, Sachs Harbour, and Tuktoyaktuk. ... the interests of the communities have focused increasingly on the potential benefit ... for employment and training and, to a growing extent, local services. ... (Au)

Q-11118
Impact of seismic activity on muskrat populations on the Mackenzie Delta / EPEC Consulting Western Ltd. Westworth, D.A.
Ottawa : Dept. of Indian Affairs and Northern Development, c1977.
ix, 70p. : ill., maps, tables ; 28cm.
(Environmental studies - Canada. Northern Environmental Protection and Renewable Resources Branch, no. 1)
(North of 60)
ISBN 0-662-00763-8
References.

ACU, SSU

Research was initiated in March 1976 to resolve the question of whether or not seismic exploration is injurious to muskrat populations. ... Three main types of investigations were undertaken, namely: (1) direct effects experiments (injury and stress caused by explosions), (2) population studies (changes in numbers and reproduction), and (3) activity studies (pushup abandonment and behavioral alteration). ... (Au)

Q-11592
The effect of contact and ingestion of crude oil on ringed seals of the Beaufort Sea / Smith, T.G. Geraci, J.R.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
ii, 66p. : ill., tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 5)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 5)
Cover title: Effect of contact and ingestion of crude oil on ringed seals.
References.
ACU, NFSMO

... This paper attempts to evaluate the effects of crude oil on ringed seals primarily, and on harp seal whitecoat pups. Studies were conducted on both the effect of immersion in oil and ingestion of oil on wild and captive seals .... (Au)

Q-11657
Biodegradation of crude petroleum by the indigenous microbial flora of the Beaufort Sea / Bunch, J.N. Harland, R.C.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1976.
iii, 52p. : graphs, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 10)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 10)
Bibliography: p.42-44.
ACU, NFSMO

... The objectives of this study were to: 1. determine if a biodegradation potential exists in the south Beaufort Sea. 2. determine rates of degradation at various temperatures including 0 deg. C by various cultures isolated. 3. determine optimum temperatures for oil degradation and the requirements for nitrogen and phosphorus at optimal and sub-optimal temperatures. 4. determine, if possible, in situ rates of biodegradation. (Au)

Q-11720
Oil, ice and climate change : the Beaufort Sea and the search for oil / Milne, A.R. Childerhose, R.J. [Editor]. Canada. Beaufort Sea Project.
[Ottawa : Dept. of the Environment, Beaufort Sea Project, 1978?].
103p. : ill. (part. col.), maps ; 23cm.
References.
ACU, SSU, NFSMO

... This book is one of a series of six examining the ramifications of possible oil spills during either the initial drilling or extraction and transport stages of the petroleum recovery process. As the title implies, this volume deals with the anticipated effects of an undersea oilwell blowout, or a major spill from a submerged pipeline or tanker ship, in ice-cluttered arctic waters. (Au)

Q-12955
Water pollution characteristics of drilling wastes from land based exploratory northern drilling operations / Bryant, W.J. Hrudey, S.E.
[Edmonton] : Environmental Protection Service, Northwest Region, 1975.
1v. (unpaged) : ill., figures, tables ; 28cm.
([Report] - Industry/Government Working Group in Disposal Waste Fluids from Petroleum Exploratory Drilling in the Canadian North, v. 3)
Appendices.
References.
ACU

... drilling sump fluids possess chemical characteristics such as high dissolved, total suspended and volatile suspended solids, barium, aluminium, chromium, potassium and chemical oxygen demand which are capable of creating water pollution problems. Screening of the chemical characteristics in relation to acute lethal toxicity results failed to identify any one single parameter responsible for acute lethal toxicity in all samples, but several parameters were implicated for various samples. (Au)

Q-12963
Monitoring of two exploratory drilling sites in the shallow regions of Mackenzie Bay / Hrudey, S.E. McMullen, J.D.
[Edmonton] : Environmental Protection Service, Northwest Region, Environment Canada, 1975.
1v. (unpaged) : figures, tables ; 28cm.
([Report] - Industry/Government Working Group in Disposal Waste Fluids from Petroleum Exploratory Drilling in the Canadian North, v. 4)
Appendices.
References.
ACU

Discusses drilling operations, waste inventory, and receiving water monitoring from Immerk B-48 and Adgo F-28, two offshore drilling operations from artificial islands in Mackenzie Bay. (ASTIS)

Q-12980
Acute toxicity of discharged drilling muds from Immerk B-48, Beaufort Sea to rainbow trout, Salmo gairdneri (Richardson) / Weir, R.H. Lake, W.H. Thackeray, B.T.
Edmonton : Environmental Protection Service, Bioassay Laboratory, 1974.
37p. : tables ; 28cm.
([Report] - Industry/Government Working Group in Disposal Waste Fluids from Petroleum Exploratory Drilling in the Canadian North, v. 6)
Appendices.
References.
ACU

... This study was undertaken to gather preliminary acute toxicity information on the drilling fluid discharge of an active well. ... Acute toxicity bioassay procedures involved exposing rainbow trout (Salmo gairdneri Richardson) to varying concentrations of drilling fluid discharge under static conditions for 96 hours. ... (Au)

Q-13021
Marine toxicity studies on drilling fluid wastes / British Columbia Research. Division of Applied Biology.
[Edmonton : Environment Canada, Environmental Protection Service, 1975].
ii, [28]p. : tables ; 28cm.
([Report] - Industry/Government Working Group in Disposal Waste Fluids from Petroleum Exploratory Drilling in the Canadian North, v. 10)

References.
ACU

The acute toxicity of seven Arctic drilling fluid wastes to freshwater and seawater-acclimated salmonid fishes and to four intertidal invertebrate species (worms, clams, crabs and shrimp) was determined in freshwater and seawater 96-hr LC50 static bioassays. ... (Au)

Q-13030
A preliminary study of the effects of oil well drilling sump fluids on some aquatic organisms of the Mackenzie Delta / Hardin, M.J.
[S.l.] : Northwest Territories District Office, Environmental Protection Service, Northwest Region, Dept. of the Environment, [1976].
iii, 65p. : ill, figures, tables ; 28cm.
([Report] - Industry/Government Working Group in Disposal Waste Fluids from Petroleum Exploratory Drilling in the Canadian North, v. 11)
References.
ACU

Studies were done to determine the toxic effects of four oil well drilling sump fluids on phytoplankton, chironomids, amphipods and fish from the Mackenzie Delta, N.W.T. Different levels of toxicity were detected in these wastes, and the organisms showed different degrees of sensitivity to the toxicants. (Au)

Q-13048
The effect of a drilling waste on the survival and emergence of the chironomid - Chironomus tentans (Fabricius) / Didiuk, A. Wright, D.G.
[S.l.] : Fisheries and Marine Service, Resource Management Branch, Aquatic Toxic Studies Division, 1975.
iv, 19p. : graphs, tables ; 28cm.
([Report] - Industry/Government Working Group in Disposal Waste Fluids from Petroleum Exploratory Drilling in the Canadian North, v. 12)
References.
ACU

... Laboratory studies were conducted to assess the effects of deposition of thin (1, 3 and 7 mm) layers of drilling wastes on the survival of larvae of the chironomid Chironomus tentans (Fabricius), using the emergence of adults as an index of survival. An average of 84% of the organisms emerged as adults from control tanks. Populations treated with 1 mm, 3 mm or 7 mm layers of drilling wastes achieved only 61%, 47% or 12% emergence, respectively. (Au)

Q-13528
A preliminary assessment of water pollution from abandoned oil and gas drilling sumps in the Northwest Territories / Hrudey, S.E. Michalchuk, J. McMullen, J.D.
[Edmonton] : Environmental Protection Service, Northwest Region, Environment Canada, 1974.
iii, [63]p. : ill., figures, tables ; 28cm.
([Report] - Industry/Government Working Group in Disposal Waste Fluids from Petroleum Exploratory Drilling in the Canadian North, v. 2)
Appendices.
References.
ACU

..., this study was undertaken ... to assess the magnitude of any water pollution problems associated with abandoned (reclaimed) sumps in the MacKenzie Delta and Arctic Islands. The assessment was to be based on determining whether pollutant leaching from abandoned sumps into subsurface and surface waters occurs. (Au)

Q-14281
Guidelines to prepare an environmental impact statement of the proposed Mackenzie Delta gas development / Canada. Federal Environmental Assessment Review Office.
Ottawa : Federal Environmental Assessment Review Office, [1975].
[8]p. ; 36cm.
Cover title.
ACU

Presents guidelines in the preparation of an environmental impact statement of the proposed Mackenzie Delta gas project. (ASTIS)

Q-15504
Light intensity and primary productivity under sea ice containing oil / Adams, W.A.
Victoria, B.C. : Beaufort Sea Project, 1975.
156p. : ill., figures, charts, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 29)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 29)
Bibliography: p.34-39.
ACU, NFSMO

... The scope of the present impact study is limited to assessment of some physical and chemical parameters of the ice covered Arctic sea subjected to under-ice crude oil discharges, especially those parameters which strongly influence marine plant growth such as light intensity. These have been correlated with algal activity, diversity, and abundance. ... (Au)

Q-15520
Hydrodynamics of an oilwell blowout / Topham, D.R.
Victoria, B.C. : Beaufort Sea Project, 1975.
52p. : ill., figures, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 33)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 33)
References.
ACU, NFSMO

... The work described in this report concerns the behaviour of the oil/gas mixture as it leaves the pipe exit, its transport to the sea surface, and the locally induced water flows. ... Two separate experiments were undertaken, a full-scale simulation of the gas bubble plume in 60 m of seawater using air compressors, and a tank experiment investigating the behaviour of gas/oil mixtures at an underwater pipe exit. As these two experiments were separate investigations, they are presented as self-contained sections and the major consequences are delineated in a separate section describing a probable blowout scenario. (Au)

Q-15547
Oil, ice and climate in the Beaufort Sea / Walker, E.R.
Victoria, B.C. : Beaufort Sea Project, 1975.
40p. : figures, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 35)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 35)
Bibliography: p.35-39.
Also available in microfiche.
ACU, NFSMO

The amount of crude oil which may be released to the environment during drilling in the Beaufort Sea is estimated. The effects of oil in terms of the Beaufort Sea surface heat budget are briefly discussed. Considering the amount of oil likely to be released in exploratory drilling, its movement, and its effect on the surface heat budget, it is estimated that no important climatic effects are likely. (Au)

Q-15555
Hydrocarbon levels in the marine environment of the southern Beaufort Sea / Wong, C.S. Cretney, W.J. Christensen, P. Macdonald, R.W.
Victoria, B.C. : Beaufort Sea Project, 1976.
113p. : figures, map, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 38)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 38)
Bibliography: p.108-113.
ACU, NFSMO

... The objectives of the investigation are: (1) to establish the baseline hydrocarbon levels in the Southern Beaufort Sea drilling area by measuring classes of hydrocarbons and identifying some specific hydrocarbons in sea water, marine organisms, fish and surface sediments, (2) to assess the origin of present day hydrocarbons, whether anthropogenic or naturally-occurring, and (3) to understand the probable hydrocarbon pathways in case an oil spill or blow-out occurs in the area. ... (Au)

Q-15806
Through the looking glass : a review of an industry/public interface program in canada's north / Mary Collins Consultants Limited. Collins, M.
Calgary : Pallister Resource Management Ltd., 1976.
17 leaves : ill. ; 28cm.
Cover title.
Presentation to Beaufort Sea Symposium, University of Calgary.
ACU

... The program was carried out on behalf of the petroleum industry's participation in the Beaufort Sea Project, ... The purpose of the information program was to develop a two way communication process about the environmental program between the public - particularly the people of the north - and industry. ... (Au)

Q-16241
The interaction of crude oil with Arctic sea ice / NORCOR Engineering and Research Limited.
Victoria, B.C. : Beaufort Sea Project, 1975.
[200]p. : ill., figures, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 27)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 27)
Appendices.
References.
ACU, NFSMO

Presents a detailed study of petroleum pollution of sea ice and ice-covered waters by investigating several areas of oil and ice interaction: the plume, area of contamination, incorporation, migration, effect of oil on ice growth, effect of oil on ice depletion, clean-up, and environmental impact. (ASTIS)

Q-16470
Review of the 1977 drilling program in the Beaufort Sea : final report / Canada. DIAND. Steering Committee on Dome/CANMAR Operations.
Ottawa : Dept. of Indian Affairs and Northern Development, 1977.
48 leaves : figures, tables ; 28cm.
(Final report - Canada. DIAND. Steering Committee on Dome/CANMAR Operations, 1977)
ACU, SSU, NFSMO

A summary of three previous reports on socio-economic-cultural matters, environmental impact and technical aspects of Dome/CANMAR 1977 drilling program. Financial considerations, extension of program into 1978 and 1979 seasons, federal-territorial relations, international aspects and interdepartmental consultations are briefly discussed. Recommendations resulting from the social-economic-cultural review are presented. (ASTIS)

Q-16489
Environmental review of Beaufort Sea offshore drilling 1977 season : summary report and recommendations / Canada. DIAND. Steering Committee on Dome/CANMAR Operations. Environmental Analysis Sub-Committee.
[Ottawa : Dept. of Indian and Northern Affairs], 1978.
60p. ; 28cm.
(Annex - Canada. DIAND. Steering Committee on Dome/CANMAR Operations, no. 1)
Bound with Bannon, Peter. Inspection report of Dome/CANMAR 1977 offshore drilling operations - Beaufort Sea, N.W.T.
ACU, SSU, NFSMO

Examines CANMAR's compliance with the Environmental Operating Conditions (E.O.C.). Assesses the adequacy of the E.O.C., oil spill contingency plan and equipment, quality and accuracy of the weather forecasting system, and the transportation support systems. Reviews the extent of environmental monitoring and surveillance and the general weather and ice conditions. Recommends improvements, alterations and modifications of the E.O.C. for proposed continuation of the drilling program in 1978 and future years. (ASTIS)

Q-16497
An assessment of the social, cultural and economic impact of Dome/Canmar's drilling activities - 1977 / Canada. DIAND. Steering Committee on Dome/CANMAR Operations. Social, Economic, Cultural Review Sub-Committee.
[Ottawa : Dept. of Indian Affairs and Northern Development], 1978.
148p. : tables ; 28cm.
(Annex - Canada. DIAND. Steering Committee on Dome/CANMAR Operations, no. 2)
Appendices.
ACU, SSU

Assesses the social, economic and cultural impact on the communities of Aklavik, Inuvik, Tuktoyaktuk, Sachs Harbour, Holman Island, Coppermine and Paulatuk. Reviews CANMAR's success in meeting with the terms of their Socio-Economic Agreement with the Government of Canada, and the report prepared by Mary Collins Consultants Limited on the social impact of the drilling program on Tuktoyaktuk. Includes recommendations on a program to maximize net benefits to the Beaufort Sea communities. (ASTIS)

Q-16500
Technical assessment of drilling operations by Canmar in 1977, Beaufort Sea / Canada. DIAND. Steering Committee on Dome/CANMAR Operations. Technical Sub-Committee.
[Ottawa] : Dept. of Indian and Northern Affairs, 1978.
57p. : figures ; 28cm.
(Annex - Canada. DIAND. Steering Committee on Dome/CANMAR Operations, no. 3)
ACU

Presents results of the technical assessment with regards to Canadian content in equipment purchases, construction, contract services, and compliance with equipment specifications, technical operating conditions. Evaluates the adequacy of control regulations and conditions in order to recommend improvements, alterations or modifications to technical operations. (ASTIS)

Q-17019
Guidelines for preparation of an environmental impact statement for the Dempster Lateral Pipeline Yukon Territory and Northwest Territories - Canada / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Dempster Lateral Pipeline. Klenavic, J.
Ottawa : Federal Environmental Assessment Review Office, 1978.
36 leaves ; 28cm.
Cover title.
ACU

Presents guidelines in the preparation of an environmental impact statement for the construction and operation of a pipeline for the delivery of natural gas from a Mackenzie Delta gas processing plant to the Alaska Highway Gas Pipeline. The environmental impact statement should include an overview summary, description of project - including information on alternatives, associated projects, construction, operation and maintenance, investigation of the environmental, land, resource, demographic and social settings, assessment of environmental impacts and mitigation of impacts. (ASTIS)

Q-17485
Performance assessment of test liners for petroleum product storage areas in northern Canada / EBA Engineering Consultants Limited. Canada. EPS. Northwest Region. Environmental Emergency Branch.
[Ottawa : Environmental Protection Service, Dept. of Fisheries and the Environment, c1978].
vii, 66p. : ill. (part col.), figures, tables ; 28cm.
(Technology development report - Canada. EPS. Environmental Impact Control Directorate, EPS-4-EC-78- 6)
ISBN 0-662-01974-1
Report submitted to Environmental Emergency Division, Environmental Protection Service, Northwest Region.
ACU

... Test sections of four potential liner materials were installed at a tank farm near Yellowknife, N.W.T. ... The four liner systems were: a processed bentonite, which was mixed with in-situ soils; a molten, spray-applied sulphur, which formed a rigid liner; two urethane coatings, spray-applied onto a fabric backing; and two types of urethane foams. ... (Au)

Q-18309
Probabilities of blowouts in Canadian Arctic waters / F.G. Bercha and Associates Limited. Canada. EPS. Environmental Emergency Branch. Research and Development Division.
[Ottawa : Environmental Impact Control Directorate, Environmental Protection Service, Fisheries and Environment Canada], 1978.
viii, 139p. : ill., figures, maps, tables ; 28cm.
(Economic and technical review report - Canada. EPS. Environmental Impact Control Directorate, EPS-3-EC-78- 12)
ISBN 0-662-10180-4
Report submitted to: Research and Development Division, Environmental Emergency Branch, Environmental Impact Control Directorate, Fisheries and Environment Canada.
Bibliography: p.135-139.
ACU

The work consisted of the development of a reliability analysis capable of generating blowout probability predictions for artificial island and drillship drilling systems used for exploratory drilling in the South Beaufort Sea. Human, environmental, and equipment failure risk factors were considered in the analysis. ... (Au)

Q-18775
Offshore drilling for oil in the Beaufort Sea, a preliminary environmental assessment / Canada. Beaufort Sea Project. Milne, A.R. Smiley, B.D.
Rev.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
43 leaves : figures, maps ; 29cm.
ACU, NFSMO

... This report is an environmental assessment and by assuming hypothetical worst-case oil well blowout scenarios, examines the nature of the transport and fate of oil in the Beaufort Sea and draws conclusions regarding the impact of the oil on the environment, including climate, seabirds, marine mammals and other marine organisms. ... (Au)

Q-18783
Construction of artificial islands as Beaufort Sea drilling platforms / Garratt, D.H. Kry, P.R.
[Montreal : Petroleum Society of CIM, 1977].
9p. : ill., figures, maps ; 28cm.
(Journal of Canadian petroleum technology, v. 17, no. 2, Apr./June 1978, p. 73-79, ill.)
Paper presented at the 28th Annual Technical Meeting of the Petroleum Society of CIM in Edmonton, May 20th to June 3, 1977.
Also published in the Journal of Canadian petroleum geology.
Preprint.
References.
ACU, NFSMO

... The islands have been designed to withstand waves in the area plus loading of ice sheets of up to 7 feet thick. Imperial has constructed 13 islands in water depths ranging from 6 feet to 28 feet employing three different construction techniques. ... (Au)

Q-19321
Technology update - artificial islands in the Beaufort Sea / Garratt, D.H.
(Proceedings - Arctic Environmental Workshop, 7th, Fairmont Hot Springs, B.C., April 12-15, 1978 / Edited by S. James [and] D. Mackay. Toronto : Institute for Environmental Studies of the University of Toronto, [1978]. Publication - Toronto. University. Institute for Environmental Studies, EE 8, p. 25-38, ill.)
ACU, NFSMO

... I will briefly outline the physical environmental conditions to which the islands are exposed; describe how the island design contends with the environmental conditions; and, finally touch on some of the construction and operational constraints in building artificial islands in the area. (Au)

Q-19550
Natural gas hydrates in northern Canada / Davidson, D.W. El-Defrawy, M.K. Fuglem, M.O. Judge, A.S.
(Proceedings - International Conference on Permafrost, 3rd, Edmonton, Alberta, July 10-13, 1978. Ottawa : National Research Council of Canada, 1978- , v.1, p. 937-943, figures)
References.
ACU

... Gas hydrates possess ice-like physical and electrical properties which make possible their detection by appropriate logging methods. Their presence can create hazards in drilling as a result of the gas pressures generated by decompositon of hydrate. Among the hydrate deposits possible in Canada, those in the region of the Mackenzie Delta contain an estimated 88 x 10-9 standard cubic m of methane. (Au)

Q-19798
Beaufort Sea drilling / Todd, M.B.
(Proceedings - Arctic Environmental Workshop, 7th, Fairmont Hot Springs, B.C., April 12-15, 1978 / Edited by S. James [and] D. Mackay. Toronto : Institute for Environmental Studies of the University of Toronto, [1978]. Publication - Toronto. University. Institute for Environmental Studies, EE 8, p. 47-66)
ACU, NFSMO

Describes the drilling program jointly undertaken by Canadian Marine Drilling and Dome Petroleum in the Beaufort Sea. Describes oil-spill countermeasures, blowout preventer protection, mooring systems, well planning and design, drilling equipment, and support services that enable the two companies to carry out their drilling and exploration programs. (ASTIS)

Q-20621
The Beaufort Sea in a Canadian perspective / Pallister, A.E.
[Calgary : Pallister Resource Management Ltd., 1976].
[20]p. ; 28cm.
Presented at a meeting of the Petroleum Society of the Canadian Institute of Mining and Metallurgy, Ottawa, Ontario, February 25, 1976.
References.
ACU

... I would like to comment in four subject areas: 1. The Canadian Energy Outlook, 2. The Beaufort Sea within the Future Canadian Energy Scene, 3. Government, Industry and the Public - Sharers of Risks and Benefits, 4. Providing for the Interests of the "Risk-Takers". (Au)

Q-20702
Sump studies / French, H.M. Canada. Arctic Land Use Research Program.
Ottawa : Dept. of Indian and Northern Affairs, 1978- .
vol. ill., maps ; 28cm.
(Environmental studies - Canada. Northern Environmental Protection and Renewable Resources Branch, no. 6)
ISBN 0-662-10182-0
Prepared for the Arctic Land Use Research Program.
Contents: Phase 1. Terrain disturbances.
References.
ACU, SSU

Forty-seven abandoned wellsites in the Mackenzie Delta and Arctic Islands were analysed with respect to terrain and land use problems encountered. Approximately 30% of the sites visited experienced problems related either directly or indirectly to sumps and/or the containment of waste drilling fluids. ... A number of possible alternate sump fluid disposal methods are mentioned. ... (Au)

Q-21202
Offshore environmental project and drilling plans in the Beaufort Sea / Pallister, A.E.
[Calgary : Palister Resource Management Ltd., 1975].
[23]p. : ill., figures ; 28cm.
Cover title.
Presented to the 14th annual conference of the Ontario Petroleum Institute, London, Ontario, October 21, 1975.
References.
ACU

... I will discuss the Beaufort Sea area from five inter-related aspects: - as a potential petroleum source - environmental considerations - the interface between the petroleum industry and the public - offshore drilling plans - the pace of its development (Au)

Q-21660
Possible accumulation of heavy metals around offshore oil production facilities in the Beaufort Sea / Newbury, T.K.
(Arctic, v. 32, no. 1, Mar. 1979, p. 42-45, map)
References.
ACU, NFSMO

The heavy metals chromium, zinc, cadmium and lead have accumulated in the sediments around some offshore oil rigs. ... Heavy metals in the sediments can probably be assimilated by epibenthic animals in the nearshore region, and then transferred through the food chain to natives who partially subsist on marine animals. (Au)

Q-23221
Environmental review of the 1978 Beaufort Sea drilling program / Canada. DIAND. Steering Committee on Dome/CANMAR Operations.
[Ottawa : Dept. of Indian and Northern Affairs, 1979].
52p. ; 28cm.
(Annex - Canada. DIAND. Steering Committee on Dome/CANMAR Operations, no. 1)
Appendices.
Bound with McComiskey, J.E. Review of environmental operating conditions for CANMAR's Beaufort Sea operations 1978 season.
ACU, SSU, NFSMO

The third season of offshore drilling in the Beaufort Sea took place in 1978 with Canadian Marine Drilling Limited (Canmar) operating at seven (7) locations and completing two (2) wells to total depth. In keeping with past practice, the government has conducted a review of the 1978 operations to examine compliance by Canmar with the Environmental Operating Conditions (E.O.C.) and highlight significant events. The review permits an assessment and evaluation of the adequacy of these conditions which leads to recommendations for improvements, alterations, and modifications to the E.O.C. for future drilling in the Beaufort Sea. (Au)

Q-23230
Socio economic review of the Beaufort Sea drilling program 1978 / N.W.T. Dept. of Planning and Program Evaluation. Rollefson, C. Szpuniarski, C. Powell, J. Foster, T.
[Ottawa : Dept. of Indian and Northern Affairs, 1979].
ii, 68p. : tables ; 28cm.
(Annex - Canada. DIAND. Steering Committee on Dome/CANMAR Operations, no. 2)
Appendices.
ACU

Discusses the economic and social impact of Dome/CANMAR's drilling activities on the Beaufort Sea communities. Also assesses the increase of crime, the improvement of the quality, stability and skills of the work force, the increase of income earned, and the decrease in the number of social assistance cases for the area. (ASTIS)

Q-23248
Technical review of the 1978 Beaufort Sea drilling program / Canada. DIAND. Steering Committee on Dome/CANMAR Operations.
[Ottawa] : Dept. of Indian Affairs and Northern Development, 1979.
[56]p. : figures ; 28cm.
(Annex - Canada. DIAND. Steering Committee on Dome/CANMAR Operations, no. 3)
ACU, SSU, NFSMO

Modifications to Dome/Canmar's vessels and equipment recommended in the 1977 Technical Review Report were completed during the wintering period of the drillship fleet. Further modifications and improvements to equipment were undertaken during the 1978 drilling season and together with a maintenance program, promoted safety and increased efficiency. The Primary and Supplementary Conditions of the Drilling Authorities were met by Dome/Canmar during the 1978 drilling season. ... (Au)

Q-23256
Review of the 1978 drilling program in the Beaufort Sea : final report / Canada. DIAND. Steering Committee on Dome/CANMAR Operations.
[Ottawa : Dept. of Indian and Northern Affairs], 1979.
46p. : figures ; 28cm.
(Final report - Canada. DIAND. Steering Committee on Dome/CANMAR Operations, 1978)
Appendices.
Bound with Cuddy, C. [et al]. A report on Beaufort Sea community meetings regarding Dome/CANMAR's 1978 offshore drilling operations.
ACU, SSU, NFSMO

As directed by Cabinet in May 1977, the Beaufort Sea Drilling program of 1978 has been subjected to a thorough review. The object of this report is to acquaint Cabinet with the findings of this review in terms of social-economic-cultural matters, environmental impact and technical aspects. (Au)

Q-23345
Feasibility study exploratory drilling systems Beaufort Sea / Acres/Santa Fe Pomeroy Arctic Services.
[Calgary : Distributed by APOA, 1971].
7 microfiches : ill. ; 11x16cm.
(APOA project no. 12 : Feasibility study of exploratory drilling in the Beaufort Sea. Report, no. 1, 2)
Contents: - v.1. Final report. - v.2. Appendices.
ACU, NFSMO

... The study area was confined to within the 200 ft. isobath, stretching east-west from Cape Bathurst to Herschel Island, encompassing therefore, both polar pack ice and shore-fast ice. The project was started in November 1970 and was completed in October 1971. Design criteria were developed for eight design zones within the study area .... In the first part of the study some 59 alternate designs for year-round concepts were developed and seven seasonal concepts were considered. In the case of year-round concepts, preliminary designs for concepts were provided together with fairly comprehensive cost estimates for concepts, ancillary and support units such as dredges, derrick barges, supply boats, etc. Also considered were methods of construction, logistics problems and preliminary schedules for final design and construction, transportation and operation. Problems of mobilizing a major structure in the Arctic or round Point Barrow and those of Arctic field construction were investigated. ... In the second part of the study a more detailed study was performed on a conical structure for a maximum water depth of 120 ft. A detailed cost estimate was worked out to include all charges for design, construction, towing, insurance and ancillary equipment. (Au)

Q-23388
State-of-the-art review of experience in assessing the socio-economic effects of northern pipeline projects as of mid-1976 / MPS Associates Ltd. Merrett, J.S.   Polar Gas Limited [Sponsor].
Winnipeg, Manitoba : M.P.S. Associates Ltd., 1977.
189p. ; 29cm.
(Socio-economic program - Polar Gas Limited)
Appendices.
References.
ACU, OON

... To serve as a guide to their documentation, in 1976, Polar Gas requested a review of the key documents produced with respect to pipeline projects in Alaska and the Mackenzie Valley. The purpose of the review was to sort out the hypothesized impact mechanisms, effects, and suggested ameliorative measures, and to check many of the more important assumptions or conclusions against actual experience. ... (Au)

Q-23396
The effects of oil exploration activities on the caribou, muskoxen, and arctic foxes on Banks Island, N.W.T., October, 1970 - November, 1971 / Urquhart, D.R.
[Ottawa : Canadian Wildlife Service, 1973].
xii, [147] p. : figures, maps, tables ; 29cm.
Appendix II: Oil exploration and the Bankslanders / by N.M. Simmons and T.W. Barry. - Canadian Wildlife Service, 1973.
Bibliography: p.[144-147].
ACU

... This report discusses the results ... for the period of October 1970 to November 1971. Caribou were not seriously disturbed by exploration equipment during the fall of 1970 and 1971. The appearance, noise and possibly odour from the camps may have contributed to an avoidance of them by caribou. ... Few observations of the reaction of muskoxen to seismic exploration camps have been obtained. Circumstantial evidence suggests muskoxen will avoid camps but reoccupy areas after the camps have departed. ... Arctic fox whelps were attracted to staging sites on the coast and to mobile camps inland. Some foxes followed the camps for periods of up to 3 weeks during the fall of 1970. Foxes were associated with permanent staging sites for a longer period of time than with seismic camps. This is probably due to the availability of food and permanent shelter. ... (Au)

Q-24449
Arctic drilling barge study / Westburne International Industries Ltd.   Foundation Company of Canada Limited.   SEDCO, Inc.
[Calgary : Distributed by APOA, 1971].
4 microfiches : diagrams, tables ; 11x16cm.
(APOA project no. 13 : Arctic drilling barge study. Report)
Appendices.
References.
ACU, NFSMO

Purpose: To determine the best configuration for a self-contained exploratory drilling barge capable of offshore drilling in the Beaufort Sea for the maximum number of days during what is known as the "open water season". It must also be able to work through the longer winter season either by transferring equipment to a land site, or by drilling with the vessel frozen into a sheltered harbour, or both. Estimate the capital and operating costs involved and provide an overall daily operating cost based on two and five year contracts. The study includes the following main sections: (1) Study of ice conditions and development of criteria for design, operation and access. (2) Preliminary design of drilling equipment, living quarters, barge, mooring system and wellhead equipment. (3) Operating efficiency, logistics and costs. .. The study ... covers the Beaufort Sea within the 600 foot isobath from the coastline to 70 deg. N and from a line 139 deg. W to a line 128 deg. W. The prime work area is in water depths less than 250 feet with maximum interest in areas with water depths between 60 feet and 150 feet. ... (Au)

Q-24481
Northern oil and gas production related employment opportunities : the impact of Mackenzie Delta production / Alberta. University. Boreal Institute for Northern Studies. De Pape, D.
[Calgary ; Distributed by APOA], 1973.
4 microfiches : charts, map ; 11x16cm.
(APOA project no. 34 : Northern resources research project. Report)
References.
ACU, NFSMO

Purpose: Study of the actual and potential economic benefits of oil, gas and minerals to northern settlements. Systems analysis of the economics of resources in the north, the contribution they are making to northern livelihood and ways of increasing this contribution. Analysis of labour requirements and skills locally available. The study will be primarily based on the collection and interpretation of existing data. (Au)

Q-24520
Arctic offshore pipeline feasibility study in Mackenzie River Delta area / Brown (R.J.) and Associates.
[Calgary : Distributed by APOA], 1973.
9 microfiches : figures, maps, tables ; 11x16cm.
(APOA project no. 39 : Arctic offshore pipeline feasibility study. Report)
Reviewed by document number 42277.
ACU, NFSMO

Purpose: To determine the technical feasibility of installing pipelines offshore Mackenzie Delta to the 150' water depth contour. Estimates of installation costs are to be provided in order to establish economic feasibility. Laybarge, Pull, and Reel-barge pipelaying methods are to be considered; limits of technical applicability for each method are to be established and problems identified. Thermal effects of the pipeline will be examined and adequate measures to prevent melting of any existing offshore permafrost will be considered. The study will analyze available scour information, evaluate risk and determine pipeline burial requirements and costs. Trenching techniques form an important aspect of the study. The project is essentially a feasibility study of Arctic offshore pipelines and not a detailed design for a specific line and route. ... (Au)

Q-25410
Initial impact assessment Dempster Corridor / Alaska Highway Pipeline Panel.
[Winnipeg] : Alaska Highway Pipeline Panel, [1979].
59p. : ill., maps, tables, figures ; 28cm.
Cover title.
Appendices.
References.
Executive summary. - [Winnipeg] : Alaska Highway Pipeline Panel, [1979]. - 15p., ill. ; 28cm.
ACU

... This report summarizes the Alaska Highway Pipeline Panel's assessment of the physical, biological and socio-economic impacts of the Dempster pipeline and associated activities. In making this assessment it has been necessary to evaluate the impacts of the recently completed Dempster Highway as well as gas plants, gas gathering systems and other consequential support activities that will inevitably follow if a gas pipeline is built. ... Unless a sound management strategy is planned and there is assurance that it will be implemented, even correct prediction of impacts will be of little use. ... (Au)

Q-25569
Beaufort Sea exploratory drilling system / Westburne International Industries Ltd. SEDCO, Inc.
[Calgary : Distributed by APOA], 1971.
2 microfiches : figures, tables ; 11x16cm.
(APOA project no. 30 : Beaufort Sea exploratory drilling systems. Report, no. 1)
ACU, NFSMO

... The purpose of this study is to investigate, compare and recommend the most advantageous drilling system for use in the bonus blocks of the Southern Beaufort Sea .... Consideration must be given to the maximum operating time coupled with the minimum capital and operating cost, with top priority always given to safety - both to personnel and to the environment. More specifically, the object of this study is to: 1. Review environmental data and reports furnished by bonus block companies. 2. Study, evaluate and recommend a drilling system. 3. Estimate capital and equipment costs, plus estimated operating and standby day rates calculated on a five-year program. 4. Forecast drilling days in the specific areas of interest. 5. Evaluate relative safety of operations. 6. Evaluate various exploratory drilling plans for summer and winter drilling. ... (Au)

Q-25577
Study of Beaufort Sea exploratory drilling systems / Global Marine Inc. Gulf Oil Canada Limited [Sponsor].
[Calgary : Distributed by APOA], 1971.
2 microfiches : figures, tables ; 11x16cm.
(APOA project no. 30 : Beaufort Sea exploratory drilling systems. Report, no. 2)
ACU, NFSMO

... Safety of the environment, personnel, well and vessels has received primary consideration. This is reflected in the recommendations of equipment and techniques. ... The environmental considerations are discussed and certain characteristics are quantified by hindcast techniques or actual measurement. A matrix presents the candidate drilling systems and summary results of the evaluation. The Ice Breaking Drilling Ship (IBDS) design considerations, approach and development are described. Consideration is also given to the ship's non-arctic deployment. Representative ship equipment selections, special features, outfitting, drilling and subsea equipment are included. A Safety Intelligence Room (SIR) is described, encompassing the vessel's communication and intelligence center. Ice detection, identification and tracking systems will receive data and a central plot will be established, integrated communications and environmental (meteorological) reports will also be handled in this area. One of the most important and least predictable duties of the support vessels will be to encounter and divert moving ice floes which present a potential hazard to the moored drilling ship. An analysis of this situation is included. ... (Au)

Q-25798
1972-1974 environmental program Mackenzie Delta, N.W.T., Canada / F.F. Slaney & Company.
[Calgary : Distributed by APOA], 1974.
37 microfiches : ill., figures, maps, tables ; 11x16cm.
(APOA project no. 61 : Environmental impact assessment program, Mackenzie Delta - Phase II. Report, no. 1-9)
Contents: - v.1. Meteorology and climate. - v.2. Hydrology. - v.3. Landform and vegetation. - v.4. Birds. - v.5. Mammals. - v.6. Aquatic resources. - v.7. Environmental quality. - v.8. Winter study supplement. - v.9. Impact assessment.
References.
ACU, NFSMO

Purpose: To assess the impact on the local ecology of possible hydrocarbon development in the Mackenzie Delta area. The study will supply environmental advice and services based primarily upon an assessment of potential impact of the construction, operation and maintenance of natural gas production, processing and associated gathering facilities on the local resources and important ecological systems. A comprehensive projection of the type and extent of environmental impact will be prepared at the conclusion of the study. (Au)

Q-26450
Some aspects of weathering and burning of crude oil in a water-and-ice environment / NORCOR Engineering and Research Limited. Belicek, J. Overall, J. Canadian Marine Drilling Limited [Sponsor].
[Calgary : Distributed by APOA], 1976.
1 microfiche : ill., figures, tables ; 11x16cm.
(APOA project no. 107 : Some aspects of weathering and burning of crude oil in water and ice environment. Report)
References.
ACU, NFSMO

This report summarizes results of field experiments designed to demonstrate some practical aspects of weathering and burning of crude oil in a water-and-ice environment. The program investigated: (1) weathering and burning characteristics of light (Norman Wells) and heavy (Swan Hills) crude oil; (2) effectiveness of burning as a method of clean-up as compared to weathering and losses through evaporation; (3) methods of ignition; (4) effectiveness of fire promotive and wicking agents; (5) characteristics of unburned residue. Experiments were carried out during the period from April 28 to May 28, 1976 at Yellowknife, N.W.T. (Au)

Q-26484
Preliminary tests of bird-scare devices on the Beaufort Sea coast / LGL Limited, Environmental Research Associates. Sharp, P.L. Canadian Marine Drilling Limited [Sponsor].
[Calgary : Distributed by APOA], 1978.
2 microfiches : ill., figures, tables ; 11x16cm.
(APOA project no. 114 : Preliminary tests of bird scare devices on the Beaufort Sea coast. Report)
Appendices.
References.
ACU, NFSMO

In the event of an oil spill or blow-out in the Beaufort Sea, the number of water birds that become oiled could be reduced by the activation of a contingency plan that includes effective means of both dispersing birds from the area and deterring birds from entering the area. This study was conducted during July and August 1977 to test the effectiveness of three devices to deter and/or disperse water birds (primarily moulting waterfowl) from a semi-enclosed bay on the Beaufort Sea coast. The devices tested were a propane-operated cannon, an Av-alarm electronic sound-generating system, and a helicopter. ... The cannon appeared to be more effective than the Av-alarm in terms of deterring swimming birds. The birds appeared to accommodate quite quickly (2-3 days) to the two devices. Neither device was very effective against flying birds. The helicopter may be an efficient device for dispersing birds that are capable of flight; it appears to be feasible but less efficient for flightless birds. The report also comments on methods of employing deterrent and/or dispersant devices for the purpose of contingency planning. (Au)

Q-26700
Summer environmental program - Mackenzie River Estuary / F.F. Slaney & Company.
[Calgary : Distributed by APOA], 1975.
13 microfiches : ill., figures, maps, tables ; 11x16cm.
(APOA project no. 76 : Summer environmental studies - East Mackenzie Bay - Mackenzie Delta. Report, v. 1-3)
Contents: - v.1. Aquatic studies. - v.2 Terrestrial studies. - v.3 Marine mammal studies.
Appendices.
References.
ACU, NFSMO

The overall purpose of the 1974 summer program was to assess the effects upon the environment of artificial island construction .... F.F. Slaney & Company conducted a multi-disciplinary environmental study program that focused on past, present and possible future island construction sites. The integrated program consisted of eight study disciplines. Physical Oceanography, Water Chemistry, Plankton, Benthos, Fisheries, Avifauna, Terrestrial Mammals, Marine Mammals. Also included were less extensive observations of meteorology and climate. All studies were designed to integrate with, or supplement, existing information and ongoing work by other groups. (Au)

Q-26760
Proposal to evaluate an oil containment boom for use in ice-infested waters / Arctec Canada Limited. Canadian Marine Drilling Limited [Sponsor].
[Calgary : Distributed by APOA], 1975.
1 microfiche : figures ; 11x16cm.
(APOA project no. 100 : Evaluation of the Bennett Canmar oil containment boom. Report, no. 1)
References.
ACU, NFSMO

This proposal presents a methodology for testing a new type of oil containment boom which has been recently developed by Bennett Pollution Controls Ltd. and Canmar Drilling Ltd. The tests proposed will allow a conservative evaluation of the maximum sea state in which the boom can contain oil. The test series will include various endurance tests in a cold-environment of the boom materials. Finally, tests will be conducted to evaluate the boom's icing tendencies in a simulated sea state. It should be noted that the tests proposed herein are not construed as a complete evaluation of the Arctic boom. The tests are designed to provide answers to three questions: 1. What sea states can the boom function in? 2. Are its materials suitable for their intended use? 3. Will the boom's performance be seriously degraded in icing conditions? ... (Au)

Q-26778
Evaluation of the Bennett-Canmar oil containment boom / Arctec Canada Limited. Nadreau, J.P. Wallace, W.G. Edwards, R.Y. Canadian Marine Drilling Limited [Sponsor].
[Calgary : Distributed by APOA], 1976.
1 microfiche : figures, tables ; 11x16cm.
(APOA project no. 100 : Evaluation of the Bennett Canmar oil containment boom. Report, no. 2)
ACU, NFSMO

... The purpose of this study was to evaluate the behavior of the boom and of its components in Arctic conditions. The tests were to be used in three ways: 1. As a basis for modifications to the boom to improve its effectiveness. 2. As a basis for comparative evaluation for purchase. 3. As documentation of the suitability of the boom as a major component of a Beaufort Sea oil spill contingency plan. In order to document the boom characteristics, the test program has been conducted to provide data on: 1. The response of the boom in various sea states. 2. The tensile strength of the boom. 3. The ability of the boom to pass ice floes. 4. The suitability of the boom materials for intended service and environment. The tests concerning the boom behavior took place in the Vancouver area and the materials endurance tests in Laval University's cold rooms (Quebec). (Au)

Q-26956
Initial impact assessment Dempster Corridor : background report - physical and biological environments / Alaska Highway Pipeline Panel. Interdisciplinary Systems Ltd.
Winnipeg : Alaska Highway Pipeline Panel, 1978.
2v. : ill., figures, maps (part. fold.), tables ; 28cm.
Contents: Report 1: Dempster and Klondike segments. - Report 2: North Delta segment.
References.
ACU

... Each of the ... research reports deals with a specific component of the environment: land, water, air, mammals, birds, fish, vegetation, heritage and land use. Each of these reports describes the nature of the problems arising from the effects of future activities within the Dempster Corridor on various parameters, presents the environmental setting and problem definition for each parameter, and gives conclusions and recommendations to control or mitigate potential impacts. ... (Au)

Q-27421
Vegetational recovery in the Canadian Arctic after crude and diesel oil spills / Hutchinson, T.C. Hellebust, J.A.
Ottawa : Indian and Northern Affairs, 1978.
vi, 62p. : ill., tables ; 28cm.
(Report - Canada. Arctic Land Use Research Program, ALUR 75-76- 83)
(North of 60)
ISBN 0-660-01600-1
References.
ACU

... The overall conclusion from the studies to date are that both crude and diesel oil act as defoliants, but neither completely eliminates below-ground storage organs at the intensities we have used. Above-ground effects are very severe, but certain species are capable of survival or of producing new shoots in the first few years following a spill. ... the initial effects of a crude oil spill on vegetation has many similarities to that of a fire. Present data indicate that in addition, post-recovery patterns may also be quite similar. ... (Au)

Q-29661
Impact of the Dempster Corridor on the Mackenzie Delta / Alaska Highway Pipeline Panel.
[Winnipeg : Alaska Highway Pipeline Panel, 1979].
73p. : ill., maps : 28cm.
Cover title.
Proceedings of a workshop held Feb. 2-3, 1979.

... discussion could not be limited to the pipeline alone, but would have to include all related activities: roads, gas plants, oil and gas development wells, gathering systems, communities, infrastructure and many other things which have to be taken into account in any national decision regarding the pipeline. The group also decided to deal with the native and non-native populations separately .... (Au)

Q-29904
Second interim report to APOA Steering Committee, Beaufort Sea Environmental Program, on public interface project, July 1, 1974 to January 31, 1975 / Mary Collins Consultants Limited. Collins, M. Pallister Resource Management Ltd. Pallister, A.E.
[S.l. : s.n.], 1975.
1 vol. (various pagings) ; 28cm.
Appendix B: Northern development and the native people, a literature review of current opinions and issues / by Walter D. Brust. - Prepared for Pallister Resource Management Ltd.
Prepared for APOA project no. 72: Beaufort Sea Environmental Program.
References.
ACU, NFSMO

... 18 companies which have provided over $4 million towards the funding of the environmental studies through the Arctic Petroleum Operators Association undertook a Public Interface Project. The Project, carried out in three overlapping Phases, was commenced on July 1st, 1974. This report describes the activities and results during the first 7 months to January 31st, 1975. ... The main body of the report reviews the original plans, how they have been carried out, and provides an evaluation of the Project together with recommendations for future actions. ... (Au)

Q-29912
Shoreline oil spill protection and cleanup strategies : southern Beaufort Sea / Worbets, B.W.
[Calgary : Distributed by APOA], 1979.
2 vol. : ill., maps ; 23x29cm.
(APOA project no. 136 : Beaufort Sea shoreline study, Komakuk Beach to Baillie Islands. Report, no. 2)
References.
Contents: Manual. - Appendix.
NFSMO

The "Shoreline Oil Spill Protection and Cleanup Strategies: Southern Beaufort Sea" has been prepared to help the On-Scene Commander selectively appoint limited resources to the most important coastal areas in order to minimize environmental damage in the event of an oil spill. This report aids oil spill response preplanning by: (1) establishing the relative importance of all sensitive coastal regions between the Alaska-Yukon border (141 deg. w) and the Baillie Islands (120 deg. w); and (2) recommending oil spill protection and cleanup strategies for each of these coastal regions. The report is divided into two separate volumes. The first volume discusses the process that was followed to develop this work. Arctic oil spill countermeasures are evaluated and the shoreline ranking system is discussed in detail. ... The second volume, a manual, has been designed for the On-Scene Commanders use, in a format that is brief, concise, and easy to use. Details on oil spill countermeasures, logistics, and environmental sensitivities in the study area are documented on maps, overlays and supporting text. Two summers of fieldwork were required to collect the site specific and operational information pertinent to oil spill response. ... (Au)

Q-30058
Oil spill countermeasures for the southern Beaufort Sea / Logan, W.J. Thornton, D.E. Ross, S.L.
Victoria, B.C. : Beaufort Sea Project, Dept. of the Environment, 1975.
2 vol. : ill., maps, graphs, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 31a, 31b)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 31a, 31b)
Bibliography: p.124-126.
Contents: no. 31a Report. - no. 31b Appendix.
No. 31a also available in microfiche.
ACU, NFSMO

This report discusses the feasibilities of controlling and cleaning up an oil spill in the Beaufort Sea as a result of an exploratory well blowout. It is likely that, in waters with up to 10% ice concentrations, currently available oil spill countermeasures equipment and techniques could be employed in sea conditions up to Beaufort 3. No equipment is available for use in higher sea conditions. If the blowout were to occur in the landfast ice zone, oil that would accumulate at the under-ice surface during winter could be incinerated in place when the oil migrates to the ice surface in the springtime. No viable techniques or proven countermeasures equipment are available for use in the seasonal pack, shear zone and the polar pack zone. The cleanup and restoration of oil contaminated shorelines would be limited to sand beaches and to a lesser extent, shingle beaches, which together comprise 37% of the Beaufort Sea shoreline. Remote sensing of oil spills, although untried in the arctic environment, would be limited to periods of good visibility. In general, the logistical base required to support an effective oil spill countermeasures operation is not available in the areas adjoining the Beaufort Sea. (Au)

Q-30074
Resources and planning of the federal government for oil spill countermeasures in the Beaufort Sea / Ross, S.L.
(Proceedings - Arctic Environmental Workshop, 6th, Fairmont Hot Springs, B.C., April 17-20, 1977 / Edited by J.G. Gainer, W.J. Logan [and] D. Mackay. Ontario : Institute for Environmental Studies, [1977]. Publication - Toronto. University. Institute for Environmental Studies, EE 6, p. 27-42, ill.)
ACU, NFSMO

My responsibility in this presentation is to outline the activities in the Federal Government directly related to the development of an oil spill countermeasures capability in the Arctic, and in particular, in the southern Beaufort Sea. ... I would like to ... outline what these activities are; briefly explain the thinking and history that has led to present programs; discuss the apparent and/or real problems that have to be solved; and finally make a case for better coordination of government and industry planning and efforts in this area. ... (Au)

Q-30082
The physical environment of the Beaufort Sea related to oil, ice and water interactions / Milne, A.R.
(Proceedings - Arctic Environmental Workshop, 6th, Fairmont Hot Springs, B.C., April 17-20, 1977 / Edited by J.G. Gainer, W.J. Logan [and] D. Mackay. Ontario : Institute for Environmental Studies, [1977]. Publication - Toronto. University. Institute for Environmental Studies, EE 6, p. 43-53, maps)
ACU, NFSMO

A main reason for this workshop is to stimulate new ideas and concepts for oil spill countermeasures in the Beaufort Sea. ... I will cover, briefly, the main features of its physical marine environment in relationship to oil pollution which could result from a subsea oil-well blowout. ... (Au)

Q-30090
Workshop on Arctic offshore environmental concerns.
(Proceedings - Arctic Environmental Workshop, 6th, Fairmont Hot Springs, B.C., April 17-20, 1977 / Edited by J.G. Gainer, W.J. Logan [and] D. Mackay. Ontario : Institute for Environmental Studies, [1977]. Publication - Toronto. University. Institute for Environmental Studies, EE 6, p. 65-78)
ACU, NFSMO

... the Arctic Offshore was defined as those Canadian Arctic waters of the Beaufort Sea, those surrounding the Arctic Islands, Hudson Bay, Hudson Strait and the Baffin Bay, Davis Strait and Labrador Sea regions. The session was subdivided into four topic areas, the first three being established on the basis of predetermined "questions" and the fourth dealing with the Eastern Arctic Marine Environmental Study. ... (Au)

Q-30104
Workshop on oil spill technology.
(Proceedings - Arctic Environmental Workshop, 6th, Fairmont Hot Springs, B.C., April 17-20, 1977 / Edited by J.G. Gainer, W.J. Logan [and] D. Mackay. Ontario : Institute for Environmental Studies, [1977]. Publication - Toronto. University. Institute for Environmental Studies, EE 6, p. 79-112, ill.)
Contents. - Open water. - Shorelines. - Ice. - Concluding remarks.
ACU, NFSMO

Presents several different countermeasures available in combatting oil spills in open water, oil spills on shorelines, interaction of oil spills and sea ice, and an oil well blowout under an Arctic Island ice platform. (ASTIS)

Q-30120
Experimental crude oil spills on Arctic plant communities / Wein, R.W. Bliss, L.C.
(Journal of applied ecology, v. 10, 1973, p. 671-682, tables)
(APOA project no. 37 : Arctic environmental research, tundra and ecological studies on the Mackenzie Delta and Devon Island. Report)
References.
ACU, NFSMO

... The objectives of this study were to determine the initial and long-term effects of crude oil on the survival and re-invasion of Low Arctic plant species. Supplementary measurements of thermal and moisture balances in the soil aided interpretation of the plant responses. The research was conducted at three sites in north-western Canada just to the east of the Mackenzie Delta. Inuvik is located 115 km from the Arctic Coast, Tuktoyaktuk is on the coast and Tununuk Point is about midway between the two. ... The community types, soil surface characteristics, maximum active layer depths, plot sizes, and date of oil application are given ... (Au)

Q-30139
Plant community responses to disturbances in the western Canadian Arctic / Bliss, L.C. Wein, R.W.
(Canadian journal of botany, v. 50, no. 5, 1972, p.1097-1109, photos., tables)
(APOA project no. 37 : Arctic environmental research, tundra and ecological studies on the Mackenzie Delta and Devon Island. Report)
Paper presented at the Symposium: Aspects of Northern Botany, Univ. of Alberta, June 20-24, 1971.
References.
ACU, NFSMO

... Fire stimulated the growth and flowering of Eriophorum vaginatum subsp. spissum and Calamagrostis canadensis. The recovery of dwarf heath shrubs from rhizomes was relatively rapid while lichens and mosses showed no early recovery. Crude oil spilled in different plant communities killed the leaves of all species, yet regrowth occurred on some woody species the same summer and more species showed regrowth the second summer. Oil spilled in early winter (October) and in wet sedge communities in summer appeared to be most detrimental. Percentage plant removal has been significantly reduced with changed seismic technology in the past 6 years. Native species, often from rhizomes, reinvade all lines though recovery on peats and by native grasses appears most rapid. Winter roads of compacted snow were less detrimental to wetland sedge communities than to upland dward shrub-sedge-heath ones. ... The different plant community-topographic-soil-ground ice landscape units or system respond differentially to the different surface disturbances tested to date. This is true in both the Low and High Arctic. (Au)

Q-30171
Will oil spills damage Arctic tundra? / Wein, R.W.
(Oilweek, v. 21, no. 46, Jan. 4, 1971, p. 13-14)
(APOA project no. 37 : Arctic environmental research, tundra and ecological studies on the Mackenzie Delta and Devon Island. Report)
ACU, NFSMO

... Experimental areas in the Mackenzie Delta were located at Inuvik, Tuktoyaktuk and Tununuk Point (on the southern tip of Richard Island). Five landscape units (vegetation-soils-topography-permafrost conditions) were selected as study sites. At each site crude oil was applied in the spring, summer, and late fall. The last treatment was applied when the snow cover was eight inches deep. ... In conclusion it should be pointed out that although oil spills on land have occurred many times before and have been studied scientifically, we do not know how much of this information is applicable to the Arctic tundra. ... (Au)

Q-30309
Interim report to APOA Steering Committee, Beaufort Sea Environmental Program, of [sic] the design of a public interface project / Mary Collins Consultants Limited. Collins, M. Pallister Resource Management Ltd. Orange, R.J.
[S.l. : s.n., 1974].
37 leaves ; 28cm.
Prepared for APOA project no. 72: Beaufort Sea Environmental Program
Bibliography: leaves 33-36.
ACU, NFSMO

... The purpose of this Interim Report is to update the understanding of the concerns and perceptions of the various publics. In so doing, it provides a "Design" for future communication activities which will be directed to developing a climate of mutual understanding between all those with an interest in the long term status of the Beaufort Sea. This work is particularly oriented toward the environmental surveys being conducted by the federal Department of the Environment and members of the Arctic Petroleum Operators Association. ... Public attitudes, particularly in the potentially affected communities, has been examined. Our description and assessment of these attitudes and apprehensions are described .... (Au)

Q-30813
Frontier exploration - hydrocarbon reserve potential / Meneley, R.A.
(Proceedings - Arctic Environmental Workshop, 8th, Fairmont Hot Springs, B.C., May 7-9, 1979 / Edited by S.J. Jones. Calgary : Arctic Institute of North America, 1979. Special publication - Arctic Institute of North America, p. 20-27)
ACU, NFSMO

... the oil industry has come a long way in the exploration of the Canadian frontiers: - in their capability to operate efficiently in increasingly harsh environments; - in their knowledge of the geology of the frontier basins and the habitat of oil and gas in those basins; and most of all, - industry is learning and more readily accepting the need to operate in such a manner so as to minimize the environmental and social consequence of conducting exploration activities. Four large frontier areas in Canada are the most attractive areas in which major frontier oil discoveries can be anticipated: Labrador offshore, Baffin Bay, Offshore Beaufort, Arctic Islands .... (Au)

Q-30821
Arctic marine environmental studies / Milne, A.R.
(Proceedings - Arctic Environmental Workshop, 8th, Fairmont Hot Springs, B.C., May 7-9, 1979 / Edited by S.J. Jones. Calgary : Arctic Institute of North America, 1979. Special publication - Arctic Institute of North America, p. 28-43, ill., map)
References.
ACU, NFSMO

In this paper the author reviews three major environmental studies: The Beaufort Sea Project; Eastern Arctic Marine Environmental Studies (EAMES); and, Offshore Labrador Biological Studies (OLABS). He discusses the Environmental Assessment and Review Process (EARP), the Initial Environmental Evaluation (IEE) and the Environmental Impact Statement (EIS) and their particular place in off-shore oil and gas projects. (ASTIS)

Q-30872
Socio-economic/environmental impact assessment panel / Weisenberger, C.
(Proceedings - Arctic Environmantal Workshop, 8th, Fairmont Hot Springs, B.C., May 7-9, 1979 / Edited by S.J. Jones. Calgary : Arctic Institute of North America, 1979. Special publication - Arctic Institute of North America, p. 101-156, ill., maps)
With "Sequence of events concerning exploratory drilling in the Beaufort Sea and Davis Strait regions" / by Catherine Weisenberger, p.106-124.
ACU, NFSMO

The panel, using the discussion format and case studies, concerned itself with man's actions with reference to the petroleum industry on a) the environment, and on b) the cultural, social and economic conditions including policies, legislation, programs, projects or operational procedures in the Canadian Arctic. Two mini workshops developed from this and the results of each are presented. (ASTIS)

Q-31070
A proposed study of oil and gas under ice /
Canadian Marine Drilling Limited. Pistruzak, W.M.
(Spill technology newsletter, v. 4, no. 5, Sept.-Oct. 1979, p. 304-313, figures, map)
ACU, NFSMO

It is Canmar's objective to conduct a field experiment this coming winter to determine how successful burning would be as a countermeasure and to optimize burning techniques for oil and gas released from a Beaufort Sea Blowout under first year ice, and to optimize burning techniques. The experiment has the following main goals: a) Understand how the oil behaves in the ice, and especially how gas affects the rates of oil migration to the surface in the spring during the melt period. b) Understand how the oil accumulates on the melting ice, i.e. the thickness, degree of weathering, area, and drift due to wind and melt-water flow. c) To elucidate, if possible, the optimum time for burning of oil contained on melt pools so that environmental damage can be minimized. d) Devise and test under realistic conditions, devices which can ignite the oil. e) Measure how much oil is burned, how much remains as a residue, and to obtain data on the chemical nature of the residue. Should Dome/Canmar receive government approval to proceed with the experiment, ... then Canmar would proceed ... to discharge oil and gas under Beaufort Sea ice during two different periods of winter (early December and early March) and to monitor the subsequent results. (Au)

Q-31178
Reconnaissance of mud spill damage to terrain in the Mackenzie Delta, N.W.T. / Beak Consultants Ltd. Railton, J.B. Panarctic Oils Ltd.
[Calgary : Beak Consultants Limited], 1975.
1v. : ill., col. photos. ; 29cm.
"A report fulfilling the requirements of the Scientist and Explorers Ordinance of the Northwest Territories, prepared for Panarctic Oils Ltd."
ACPO

..., Beak visited the Gulf East Reindeer C-38 and Gulf East Reindeer P-61 sites. ... to determine, in a semi-quantitative manner, the effect of spilled drilling mud on arctic vegetation. ... The approach was mainly through observation with some support using quantitative data. ... The thickness of mud determines the type and quantity of vegetation recolonizing a mud spill. Tussock forming species ... tend to recolonize the mud spill. Mosses and lichens are usually killed .... (Au)

Q-31186
Seismic activities and muskoxen and caribou on Banks Island, N.W.T. / Beak Consultants Ltd. Panarctic Oils Ltd.
[Calgary : Beak Consultants Limited], 1975
Iv. : ill. ; 29cm.
Study conducted for Panarctic Oils Ltd.
References.
ACU, ACPO

A seismic programme carried out from January 27 to April 9, 1975, on Banks Island, N.W.T. provided an opportunity to study the effects of this activity on musk-oxen behaviour, and . peripherally on the caribou. The study concluded that the disturbance is minimal and that at no time were either groups of animnals overly disturbed. (ASTIS)

Q-31399
The Dempster pipeline / Foothills Pipe Lines (North Yukon) Ltd.
[Calgary] : Foothills Pipe Lines (North Yukon), 1979.
1 portfolio : map ; 29cm.

Describes what the Dempster pipeline project is, who is planning it, what studies are being done for it, and the opportunities for individuals and communities to participate in the construction and operation stages. This information kit is meant to be distributed to residents of the area through which the proposed pipeline will be built. (ASTIS)

Q-32018
The Canol Project : a poorly planned pipeline / Karamanski, T.J.
(Alaska journal, v. 9, no. 4, Autumn 1979, p. 17-21, map, photos.)
References.
ACU

The lessons learned during the building of this World War II defense project can serve as healthy reminders of what not to do and how not do do it. (Au)

Q-32085
The Dempster Lateral Gas Pipeline Project / Foothills Pipe Lines (Yukon) Ltd.
Calgary : Foothills Pipe Lines (Yukon), 1979.
8 vol. : ill., maps ; 30cm.
References in each volume.

These materials are the application and supporting information, including facilities required and financial details, environmental and socio-economic impact statements, maps, provision for facilities expansion, and considerations of an integrated transmission system, submitted by Foothills Pipe Lines in order to obtain permission to construct and operate a natural gas pipeline from the Mackenzie delta to connect with the Alaska Highway Gas Pipeline system near Whitehorse. (ASTIS)

Q-32220
Crude oil in cold water : the Beaufort Sea and the search for oil / Milne, A.R. Herlinveaux, R.H. Childerhose, R.J. [Editor]. Canada. Beaufort Sea Project.
[Ottawa : Dept. of the Environment, 1979?].
119p. : ill., figures, col. photos., maps, tables ; 23cm.
ACU, NFSMO

... The purpose of this book is to trace the drift of oil flowing unchecked from an imaginary offshore blowout through the seasons of the year. No mathematical models of oilspill trajectories will be developed. Mathematical representations of sea, wind and ice interactions in the Beaufort Sea lie beyond our present abilities. Much of the text is devoted to the oceanography of the Beaufort Sea and features such as sediments, storm surges and sea ice. Diagrams near the end of the book show the possible spread of oil from a blowout for the spring, summer and winter. These predictions show where and when the oil is most likely to appear but do not forecast its actual drift; this cannot be done with any more accuracy than next summer's weather can be foretold. ... (Au)

Q-35386
The need for action-oriented R and D in the Canadian Arctic / Harrison, G.R. Dome Petroleum Limited.
(Proceedings - Symposium on Marine Transportation and High Arctic Development :

Policy Framework and Priorities, Montebello, P.Q., 21-23 March, 1979. Ottawa : Canadian Arctic Resources Committee, 1979, p. 45-58, ill.)
ACU, NFSMO

The author suggests the keys to Arctic development are vigorous resource exploration and the development of Arctic marine technology emphasizing field research. The research and development objectives and experiences of Dome Petroleum illustrate a successful approach to innovation in the Arctic marine environment. Five research priorities are given. (ASTIS)

Q-37397
Breaking ice for Arctic oil / Cottrill, A.
(Offshore engineer, 1979 [12] Dec., p. 40-52, ill., maps, photos. (part. col.))
Cover title.
ACU, NFSMO

The world's most exciting new frontier region is entering a critical phase. When Canada's Dome Petroleum ... announced its first potentially commercial oil strike in the Beaufort Sea, many will have asked the question; 'now they have found it, how will they possibly exploit it?' Our international editor Adrian Cottrill has been to find the answer and discovered that the company already has some fairly clear ideas. He talked with senior Dome engineers in their Calgary Offices, and during a four-day visit to the North, overnighted on a drillship and at Tuk basu, to sample the realities facing operations there. His review of Dome R and D looks in particular at how Dome is tackling its two chief challenges: evolving an oil production and transportation system for this unique area; and extending the season for the world's most costly drilling operations. (Au)

Q-39527
Polar Gas considering routes.
(Oilweek, v. 31, no. 11, Mar. 31, 1980, p. 14-15, map)
ACU, NFSMO

With sufficient reserves to make a pipeline economically feasible, the Polar Gas project group is now looking at four alternative routes ... to bring Arctic Islands and Mackenzie Delta gas to markets, with each alternative consisting of pipelines from the Delta and the Islands combining into a single line near Great Bear Lake. (Au)

Q-39926
Families of crude oils and condensates in the Beaufort-Mackenzie basin / Snowdon, L.R. Powell, T.G.
(Bulletin of Canadian petroleum geology, v. 27, no. 2, June 1979, p. 139-162, ill., figures, tables)
References.
ACU

Crude oils and condensates from the Beaufort-Mackenzie Basin have been analyzed chemically in order to establish a genetic classification scheme. The chemical properties of crude oils and condensates are a function of thermal and biological processes as well as the type of source organic matter. By examining many chemical parameters, the effects of biodegradation and primary or secondary thermal alteration have been circumvented as much as possible. ... (Au)

Q-40096
Canada's Beaufort, Arctic Islands, Atlantic frontiers look steadily better / Wilson, H.M.
(Oil and gas journal, v. 78, no. 8, Feb. 25, 1980, p. 63-69, ill., col. photos., maps)
ACU, NFSMO

This article describes recent and projected drilling programs in the Canadian Beaufort Sea/Mackenzie Delta area and Panarctic's 1980 Arctic Islands drilling program. Technical, political, and economic factors affecting the continuation of frontier exploration are discussed. (ASTIS)

Q-40541
A study of the influence of seismic exploration on muskoxen and caribou on Banks Island, N.W.T. / Beak Consultants Ltd. Carruthers, D.R. Panarctic Oils Ltd.
[Calgary] : Beak Consultants Limited, 1976.
67 leaves : ill., figures, maps, col. photos. ; 28cm.
Prepared for Panarctic Oils Ltd.
Appendices.
References.
ACU, ACPO

This is a study of interactions between seismic operations and caribou and muskoxen on Banks Island, N.W.T. ... Observations were made on disturbed and undisturbed herds and an effort was made to quantify reactions to various disturbance stimuli. ... Conclusions based on this study are: 1. ... Seismic operations did not influence use of the study area by muskoxen. 2. Seismic operations did not affect the size of the muskoxen population or herd size in the area. 3. Reaction of muskoxen to vehicles was similar to response elicited by wolves. ... 4. It is possible to approach a herd to a distance of 250 m on flat terrain in a Nodwell without noticeable disturbance. ... Similar distances were recorded for caribou although sample size was small. 5. Aircraft and snowmobiles induce more marked responses at greater distances than do Nodwells. (Au)

Q-42242
Arctic dialogue '76 : April 26-28, 1976 / Gulf Oil Canada Limited.
s.l. : s.n., [1976].
1 v. (looseleaf) : ill., maps, photos. (part. col.) ; 28cm.
References.
ACGO

This information kit was compiled for eight participants of a northern tour to Edmonton, Whitehorse, Inuvik and Yellowknife. It contains background information on the areas visited, oil and gas industry activities in the areas, and the problems posed by the northern environment. Briefs on the Canadian Arctic Gas Study Limited and the proposed Parsons Lake gas project in the Mackenzie delta are included. (ASTIS)

Q-42277
Report on 1975-1976 offshore pipeline activities / Beaufort-Delta Oil Project Limited.
s.l. : s.n., 1976.
4v. : ill., maps ; 28cm.
Cover title: Offshore pipeline activities 1975-1976.
Appendices.
References.
Contents: - 1975-1976 offshore pipeline activities summary / by P.E. Boisseau. - A review of Arctic Petroleum Operators' Association project no.39 report [document number 24520] / Prepared by J.C. Adair, D.P. Hemphill [and] J.K. McCarron, Pipeline Research and Development Laboratory Shell Development Company. - Geotechnical review of Arctic

Petroleum Operators' Association report no.39 / Prepared by EBA Engineering Consultants Ltd. - Project development program for offshore pipeline in the Beaufort Sea / by P.E. Boisseau. - Mackenzie Bay geotechnical information : a review for marine pipeline studies / Prepared by EBA Engineering Consultants Ltd. - Preliminary geothermal study : Beaufort Sea oil pipeline / Prepared by EBA Engineering Consultants Ltd. - Some geotechnical, geophysical, geothermal and environmental aspects of the southern Beaufort Sea / Compiled by EBA Engineering Consultants Ltd.
ACGO, NFSMO

Part I contains a summary of the 1975-1976 activities of the Beaufort-Delta Oil Project Limited together with six background reports. The six background reports describe reviews of the Arctic Petroleum Operators' Association, Report no.39, on a Beaufort Sea pipeline, project development programs for an offshore pipeline, a review of prior geotechnical information and results of a preliminary geothermal study. ... Shallow seismic, side scan sonar and fathometric data were obtained along with samples of bottom sediments, geothermal measurements and sea water temperature and salinity profiles. ... [and] then integrated with prior information, analyzed and compiled as Part II ... in three volumes, the first containing the text of the report and volumes II and III, related maps and drawings. (Au)

Q-42463
Under the Beaufort : Canada drills in the Arctic / Canada. DIAND.
[Ottawa] : Indian and Northern Affairs Canada, [1980].
42p. : ill., col. photos. ; 28cm.
ISBN 0-662-10913-9
ACU

A brief overview of the search for oil in the Beaufort Sea and Mackenzie Delta. The history, technology and environmental issues involved are some of the topics dealt with briefly. (ASTIS)

Q-43346
A rational and economical solution for the transportation of North Slope of Alaska and northern Canadian oil and natural gas to the Canadian and U.S. east coast markets / Tikkoo, R.N.
Ottawa : Canadian Arctic Resources Committee, 1980.
4p. ; 36cm.
(Arctic seas bulletin, v. 2, no. 5, May 1980)
Speech by Ravi N. Tikkoo, Chairman of the Board of Globtik Tankers (USA) Inc., presented at the Financial Post Conference, Toronto, March 18, 1980.
ACU

The author discusses the favourable aspects of arctic marine transportation systems as the solution to problems of getting oil and natural gas from remote production areas in Alaska and the Canadian north to the eastern North America markets. (ASTIS)

Q-43885
1976 summer aquatic studies, Arnak L-30 artificial island site and Tuft Point Borrow site / F.F. Slaney & Company. Olmsted, W.R. Imperial Oil Limited.
Vancouver : F.F. Slaney & Company Limited, 1977.
3,101,32p. : ill., figures, maps (part. fold.), tables ; 29cm.
Prepared for Imperial Oil Limited.
Appendices.
References.
ACU

... This report provides the results of an intensive bio-physical program of aquatic studies at the Arnak L-30 sacrificial beach site before, during and following construction. The environmental effects associated with this major uncontained hydraulic fill operation were determined to be of short duration and limited to a maximum radius of approximately 5 km for all bio-physical parameters examined. This report also contains the results of an environmental overview program conducted to assess environmental concerns associated with the construction of a protective breakwater and subsequent dredging activities at Tuft Point on the Tuktoyaktuk Peninsula. ... (Au)

Q-43990
White whale study in the Herschel Island - Cape Dalhousie coastal region of the Beaufort Sea / F.F. Slaney & Company. Webb, R. Imperial Oil Limited.
Vancouver : F.F. Slaney & Company Limited, 1974.
29 leaves : ill., maps (part. fold.), photos. ; 29cm.
Prepared for Imperial Oil Limited.
Copy of Proposal submitted for the study bound at the front.
Appendices.
References.
ACU

... a detailed report on the 1973 white whale investigations within the Mackenzie Estuary and adjacent seacoast from Herschel Island to Cape Dalhousie. ... The most significant findings were as follows: 1. Greater numbers of whales used the Mackenzie Estuary in 1973 than in 1972. 2. Large numbers of whales arrived simultaneously in Shallow and Kugmallit Bays. 3. Whales traversed East Mackenzie Bay in numbers high enough to sustain a successful Kendall Island hunt. 4. Approximately 177 whales were harvested within the Estuary. 5. Neither whale movements nor success of Kendall Island hunters were adversely affected by the completion of Immerk Island. ... (Au)

Q-44504
Environmental impact assessment Immerk artificial island construction, Mackenzie Bay, N.W.T. / F.F. Slaney & Company. Imperial Oil Limited [Sponsor].
Vancouver : F.F. Slaney & Company Limited, 1973.
4 microfiches : ill., figures, maps ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE15V1, RWE15V2)
References.
Contents: - V.1. Environmental statement. - V.2. Environmental studies.
ACU

This is a two-volume report on a program of environmental impact assessment. Volume I relates research findings to the industrial process being assessed. It comprises an environmental impact statement. Volume II contains an accounting of ecological and other kinds of surveys and research undertaken to provide a factual basis for assessment. It describes environmental studies. (Au)

Q-44857
A field study of brine drainage and oil entrainment in first-year sea ice / Martin, S.
(Journal of glaciology, v. 22, no. 88, 1979, p. 473-502, ill., photos.)
(Contribution - Washington. University. Dept. of Atmospheric Sciences, no. 522)
(Contribution - Washington. University. Dept.

of Oceanography, no. 1114)
References.
ACU, NFSMO

From field observations this paper describes the growth and development of first-year sea ice and its interaction with petroleum. In particular, when sea ice initially forms, there is an upward salt transport so that the ice surface has a highly saline layer, regardless of whether the initial ice is frazil, columnar, or slush ice. When the ice warms in the spring, because of the eutectic condition, the surface salt liquifies and drains through the ice, leading to the formation of top-to-bottom brine channels and void spaces in the upper part of the ice. If oil is released beneath winter ice, then the oil becomes entrained in thin lenses within the ice. In the spring, this oil flows up to the surface through the newly-opened brine channels and distributes itself within the brine-channel feeder systems, on the ice surface, and in horizontal layers in the upper part of the ice. The paper shows that these layers probably form from the interaction of the brine drainage with the percolation of melt water from surface snow down into the ice and the rise of the oil from below. Finally in the summer, the oil on the surface leads to melt-pond formation. The solar energy absorbed by the oil on the surface of these melt ponds eventually causes the melt pond to melt through the ice, and the oil is again released into the ocean. (Au)

Q-44920
Constraints of geologic processes on western Beaufort Sea oil developments / Grantz, A. Dinter, D.A.
(Oil and gas journal, v. 78, no. 18, May 5, 1980, p. 304-319, maps)
ACU, NFSMO

This article details geologic, bathymetric, geomorphic, and sea ice and permafrost characteristics in the western Beaufort Sea which present considerable problems to offshore exploration and pipeline construction between Point Barrow and the International boundary. (ASTIS)

Q-46175
Mackenzie delta gas development system / Gulf Oil Canada Limited. Imperial Oil Limited. Shell Canada Limited.
s.l. : s.n., [1974].
6v. : ill., maps ; 28cm.
References.
Contents: - v.1. Project description. - v.2. Well design and operations. - v.3. Gathering system and production operations. - v.4. Plant process and operations. - v.5. Environmental statement. - v.6. Socio-economic assessment.
ACGO

These documents outline the techniques and facilities necessary to produce natural gas in the Mackenzie delta area and condition it for transmission to southern markets. (ASTIS)

Q-46566
Countermeasures for oil spills in Canadian Arctic waters : the Arctic Marine Oilspill Program / Ross, S.L.
Ottawa : Canadian Arctic Resources Committee, 1980.
4p. ; 36cm.
(Arctic seas bulletin, v. 2, no. 7, July 1980)
Excerpts from a paper prepared for the Arctic Marine Oilspill Seminar, Edmonton, 3-5 June, 1980.
ACU

This short report describes the history and activities of AMOP. Details of five projects involving the experimental spilling of oil in a variety of Arctic marine environments are discussed. (ASTIS)

Q-47503
Oil and ice in the Beaufort Sea : the physical effects of a hypothetical blowout / Wadhams, P.
(Petromar 80 : petroleum and the marine environment / EUROCEAN. - London : Graham & Trotman Ltd., 1981, p. 299-318, figures, tables)
(Canadian shipping and marine engineering, v. 51, no. 8, May 1980, p. 23-35, map, ill.)
References.
ACU, NFSMO

... In this paper we describe the ice conditions in the southern Beaufort Sea and review the studies that have been carried out of oil-ice interactions. Applying the results to a Beaufort Sea blowout, we estimate the likely physical effects and the disposition of the oil after a winter. ... (Au)

Q-47740
Controlling Arctic oil spills / Ross, S.L.
(Spill technology newsletter, v. 5, no. 2, Mar.-Apr. 1980, p. 55-63, ill.)
Based on a paper presented at the ninth annual Environmental Workshop on Offshore Hydrocarbon Development held at Fairmont Hot Springs, B.C., May 4-7, 1980.
ACU, NFSMO

This article discusses the public perception of oil spills, effects of major spills, the different problems posed by a spill during exploration or during production and transportation, how to deal with tanker spills, and the important administrative factors of preparedness and cooperation. (ASTIS)

Q-48712
Oil and gas potential of the Arctic / Niering, F.E.
(Petroleum economist, v. 48, no. 8, Aug. 1980, p. 339-341, map)
ACU

This synopsis of petroleum exploration and discoveries in the Beaufort Sea area and Sverdrup Basin includes a discussion of federal energy policy commitments and technological considerations which may effect the economics and timing of the development of these resources. (ASTIS)

Q-48852
Pyramids in the northern sea : newest chapter of the Beaufort saga.
(Oilweek, v. 31, no. 23, July 14, 1980, p. 40-46, ill., map, photo.)
ACU, NFSMO

This article discusses the economic prospects of Dome Petroleum's Kopanoar oil reservoir and the development plans to bring it into production. (ASTIS)

Q-48917
Polar Gas adapting proven technology for Arctic lines / Kaustinen, O.M.
(Pipe line industry, v. 53, no. 2, Aug. 1980, p. 39-42, col. ill.)

This article describes results of Polar Gas' $75 million investment in various studies to determine the best means of transporting gas from the Arctic Islands to market. The "ice hole bottom pull" method of laying a submarine pipeline is described. (ASTIS)

Q-49034
[Digging eastern Canada] / Ridgway, G.
(Offshore engineer, 1980 [7] July, p. 51-57, ill., photos.)
Contents: Scrambling for environmental data on "The North Sea with icebergs." - Caution the order of the day after initial euphoria over Hibernia. - Dome thrives on Beaufort challenge.
ACU, NFSMO

Players among Canada's community are concentrating on three offshore regions - the Beaufort Sea, the Atlantic off Newfoundland and Labrador, and the High Arctic islands. Development concerning the former two, which include research and development and production proposals, are reported .... (Au)

Q-51306
Effects of experimental crude oil spills on subarctic boreal forest vegetation near Norman Wells, N.W.T., Canada / Hutchinson, T.C. Freedman, W.
(Canadian journal of botany, v. 56, no. 19, 1978, p.2424-2433, figures, tables)
References.
ACU

Data are presented on the effects of experimental crude oil spills made on two subarctic boreal forest plant communities near Norman Wells, N.W.T. Spray spills of fresh unweathered crude oil at an intensity of 9.1 l/square m had a general herbicidal effect and caused the death of any green tissue coming in direct contact with the oil. Death of lichens and mosses was rapid and complete. For some higher plants, a considerable lag period occurred .... For others, death occurred during the first winter, with marked effects on cover values in the spring. These effects resulted in large decreases in total plant cover and frequency at spill sites. However, within a few weeks, and in subsequent years, some species developed regrowth shoots. ... Crude oil spills made in winter were found to be less damaging than equivalent summer spills in their short-term biological effects and on rates of recovery and species affected. ... Limited short-term effects of the spill treatments on depth of active layer thaw have been noted in this study, but these initial effects were not maintained after the first postspill growing season. The low rates of oil application make the conclusions about the effects of large spills on active layer stability conjectural. Potential effects on vegetation are much more firmly based. Oil in the boreal forest soil appeared to retain toxic properties throughout the 5-year study period. (Au)

Q-53309
Feeding Canmar's northern drilling operations / Taylor, E.C.
(Canadian petroleum, v. 19, no. 10, Oct. 1978, p. 48-49, photos. (part. col.))
ACU, NFSMO

This report describes how Halliburton Services uses a flexible system of pneumatic silos on transport barges and a tank storage depot at Tuktoyaktuk to supply drilling fluids, muds, and cement products required by Canmar. (ASTIS)

Q-53325
Dome's Beaufort breakout / Sorenson, J. Hartwell, J.-L.
(Canadian petroleum, v. 20, no. 6, June 1979, p. 28-30, photos.)
ACU, NFSMO

These two articles describe the refitting, including the addition of an ice-breaking bubbler system, done to the new Canmar Explorer No.4 drillship and outline the drilling season start-up activities at Dome's Tuktoyaktuk base and Summer's Harbour, Booth Island. (ASTIS)

Q-53333
Beaufort Sea drilling : can production be far behind? / Keeley, M.A.
(Canadian petroleum, v. 21, no. 8, Aug. 1980, p. 12-13, 16-17, ill., photos.)
ACU, NFSMO

This article is based on an interview with Canmar president Gordon Harrison. It outlines research in progress on ice-breaking tankers, engineering problems associated with ice forces on proposed deep-water production islands, and the development of improved off-shore drilling techniques. (ASTIS)

Q-53422
LNG pipeline design / Canuck Engineering Ltd. Canada. EMR.
(Oil and gas journal, v. 77, no. 16, Apr. 16, 1979, p. 59-63, ill.)
(Oil and gas journal, v. 77, no. 17, Apr. 23, 1979, p. 68-70)
(Oil and gas journal, v. 77, no. 18, Apr. 30, 1979, p. 239-244, ill.)
Based on a study made by Canuck Engineering Ltd. for Dept. of Energy, Mines, and Resources. Pt. 1 : LNG long-distance pipelines - a technology assessment / J.M. Stuchly and G. Walker. - Pt. 2 : Hydraulics a key to optimizing LNG pipeline / J.M. Stuchly and G. Walker. - Pt. 3 : Station coordination critical in LNG pipeline efficiency / R.G. Newell.
ACU, NFSMO

This ... series of three articles assessing the technology for large-scale LNG pipelines ... [is] based on a study made by Canuck Engineering Ltd. for Canada's Department of Energy, Mines, and Resources. The study covers a hypothetical 1,430-mile LNG pipeline from the Mackenzie River Delta, Northwest Territories, to Caroline, Alta., to transport 2,500 MMcfd. The three articles concentrate on not only the pipe requirements, but on the insulation, hydraulics, pumps, and refrigeration equipment as well. (Au)

Q-54011
Dome Petroleum - challenge and opportunity / Richards, W.E.
(Canadian shipping and marine engineering, v. 50, no. 2, Nov. 1978, p. 14-19, ill.)
Summary of a speech presented at the 5th International Ocean Development Conference, Tokyo, Sept. 1978.
ACU, NFSMO

This article describes Dome's activities in the Beaufort Sea, projections for future finds, equipment and capital requirements, and the economics of production and transportation of Arctic gas and oil. (ASTIS)

Q-54038
Psst - want to borrow an icebreaker / Stephenson, C.
(Canadian shipping and marine engineering, v. 50, no. 11, Aug. 1979, p. 34-35, photos.)
ACU, NFSMO

This article describes escort and support activities of the CCGS John A. Macdonald icebreaker in the Beaufort Sea during a year-long service contract with Canmar. (ASTIS)

Q-54410
Seismic camp '70 : a biologist on Banks Island / Urquhart, D.R.
(North/Nord, v. 25, no. 1, Jan./Feb. 1978, p. 24-31, col. photos.)

ACU

This article presents the subjective observations of a biologist assigned to a seismic crew on Banks Island in early winter. The author describes his reactions to the arctic environment and to the physical and social aspects of living and working in a mobile seismic camp. (ASTIS)

Q-55484
Artificial ice islands for exploratory drilling / Cox, G.F.N.
(POAC 79 : the Fifth International Conference on Port and Ocean Engineering under Arctic Conditions, at the Norwegian Institute of Technology, August 13-18, 1979, proceedings, v. 1, p. 147-162, ill., map)
References.
ACU, NFSMO

... This paper reviews various artificial ice construction techniques, the advantages and disadvantages of utilizing grounded artificial ice islands for exploratory drilling, and examines the capability of such a structure. Particular attention is focused on island integrity and methods by which one can improve the constructed ice strength. Indications are that flooded ice islands to be used for exploratory drilling are limited to shallow water areas. (Au)

Q-56146
Evolution of ice research for offshore pack ice operations / O'Rourke, J.C.
(POAC 79 : the Fifth International Conference on Port and Ocean Engineering under Arctic Conditions, at the Norwegian Institute of Technology, August 13-18, 1979, proceedings, v. 3, p. 441-495, ill., maps, photos.)
References.
ACU, NFSMO

... A great deal has been learned about how to operate in the moving pack ice since 1975, and a number of concepts have been developed which permit [Dome] to extend our drilling season, using drillships in the ice. These concepts include: a shorefast ice drilling system, application of coal dust and icecutting to permit the ships to break out of a winter harbour through five to six feet of ice, icebreaking operations which permit the drillships to drill in newly-forming ice in the moving pack ice up to 24 inches thick. New concepts are being developed to permit ... exploratory drilling operations and production operations year-round in the pack ice. These ... include: a turret-moored drilling system capable of operating in up to 90 feet first-year pressure ridges, bottom-founded monocones and caisson structures. We have also designed an icebreaker with novel icebreaking features as a prototype to larger icebreaking vessels and year-round Arctic Class 10 tankers. ... the Beaufort Sea places an additional requirement for research in the areas of: establishing ice and sea bottom design criteria; structural design for Arctic conditions; and a number of support facilities such as navigation, ice prediction systems, and oilspill countermeasure systems. ... (Au)

Q-57410
Plausibility of Beaufort Sea oil production by the mid-1980's / Harrison, G.R.
(Proceedings - Environmental Workshop on Offshore Hydrocarbon Development, 9th, Fairmont Hot Springs, B.C., May 4-7, 1980 / Edited by Claudette Reed Upton. Calgary : Arctic Institute of North America, 1980. Special publication - Arctic Institute of North America, p. 83-108, figures)
ACU, NFSMO

... Several things are needed before development of Beaufort Sea oil and gas can proceed. ... it must be proven that commercial size reserves exist .... that acceptable knowledge exists of ice forces and in the performance of a production platform system subject to such ice forces. ... that an acceptable knowledge exists of the predicted performance and attendant cost of tankers loading oil in the Beaufort Sea and moving it through the Northwest Passage to markets. Finally ... that environmental risks can be reliably predicted for both production and transportation activities and that such risks are acceptable. (Au)

Q-57436
Marine pipelines in the Canadian Arctic / Kaustinen, O.M.
(Proceedings - Environmental Workshop on Offshore Hydrocarbon Development, 9th, Fairmont Hot Springs, B.C., May 4-7, 1980 / Edited by Claudette Reed Upton. Calgary : Arctic Institute of North America, 1980. Special publication - Arctic Institute of North America, p. 169-184, figures)
ACU, NFSMO

This paper reports on the Polar Gas Project routing alternatives, especially concerning the two marine crossings at MClure Strait and Dolphin and Union Strait. The author discusses in detail Polar Gas's newly developed technique called "Ice Hole Bottom Pull" used to lay marine pipelines under varying ice thicknesses, and touches upon other non-engineering studies they are conducting in the area of their newly proposed pipeline route. (ASTIS)

Q-59218
Dredging, drilling & pipelaying jobs from Norman Wells expansion.
(Northern development, v. 12, no. 4, Fall 1980, p. 8-10, map)
ACU, NFSMO

A brief description of the proposed expansion at Norman Wells, N.W.T. (ASTIS)

Q-60151
Terrain, land use and waste drilling fluid disposal problems, Arctic Canada / French, H.M.
(Arctic, v. 33, no. 4, Dec. 1980, p. 794-806, figures, table)
References.
ACU, NFSMO

A survey of over 60 abandoned wellsites in the Mackenzie Delta, the Arctic Islands and the interior Yukon Territory indicated that approximately 25% of the sites experienced terrain problems related either directly or indirectly to sumps and/or the containment of waste drilling fluids. These problems are classified as follows: (A) non-containment during drilling, (B) melt-out problems during summer operations, and (C) restoration problems. Fewest problems are associated with one-season winter drilling operations. Two-season winter drilling, in which the sump is left open during the summer, and one-season summer drilling operations present more problems. (Au)

Q-61522
Black gold : the Beaufort oil rush / Canadian Arctic Resources Committee.
[Ottawa] : Canadian Arctic Resources Committee, 1980.
12p. : ill. ; 28cm.
(Northern perspectives, v. 8, no. 6, 1980)
Includes: Beaufort Sea oil : the cost of production / David B. Brooks. - The case of the

final amendment / Researched by Drew Ann Wake.
Footnotes.
ACU, NFSMO

... This issue ... discusses two facets of the Beaufort Sea oil question. The article by Dr David Brooks tries to assess how much Beaufort Sea oil will cost. In other words, is Beaufort Sea oil a sound energy investment for Canada to make at this time? The subsequent piece ... provides insights into the problems of regulating large energy projects proceeding according to extremely tight timetables. Based on information that became available only this year, it reviews some of the difficulties encountered by Dome and the federal government in trying to control drilling operations at Dome's first exploratory well in the Beaufort Sea. (Au)

Q-63410
Towards an environmental impact statement of the portion of the Mackenzie Gas Pipeline from Alaska to Alberta / Environment Protection Board. Canadian Arctic Gas Study Limited.
[Winnipeg] : Environment Protection Board, 1973.
9v. : ill., maps ; 27cm.
(Interim report - Environment Protection Board, no. 3)
Sponsored by Canadian Arctic Gas Study Limited.
Appendices: 1. Wildlife / G.W. Calef. - 2. Fish survey 1972, base data report / R. Shotton. - 3. Ornithology / R. Wayne Campbell, Brian Davies, Michael G. Shepard and Wayne C. Weber. - 4. Geotechnical and hydrological studies off-right-of-way effects / Templeton Engineering Company. - 5. Revegetation studies - Norman Wells, Inuvik and Tuktoyaktuk, N.W.T. and Prudhoe Bay, Alaska : application to the proposed pipeline route / Helios Hernandez and Inter-Disciplinary Systems Ltd. - 6. Winter road study / Templeton Engineering Company. - 6.B. Winter road study: bibliography and abstracts. - 7. Fire and northern ecosystems / A.J. Hunt.
SSU

Since 1971 the Environment Protection Board has gathered baseline data for assessing potential environmental impact along major northern portions of the proposed gas pipeline from Prudhoe Bay to southern markets. Major areas of concern are caribou, birds, other wildlife, fish, surficial materials and permafrost, water, revegetation, winter roads, fire and training of construction personnel. ... This report summarizes findings in these areas of concern and outlines further research needs. It offers some preliminary recommendations to eliminate or ameliorate pipeline construction and operation impact on the environment. The report also sets forth the Board's philosophy of environmental protection and sets the stage for impact assessment of this project. (Au)

Q-63576
Biodegradability of northern crude oils / Cook, F.D. Westlake, D.W.S.
[Ottawa] : Information Canada, 1973.
ii, 116p. : ill., figures, tables ; 28cm.
(Report - Canada. Task Force on Northern Oil Development, no. 73- 20)
Bibliography: p.95.
ACU, SSU

Field and laboratory experiments have been carried out to study the factors which influence the microbial utilization of crude oil. Experiments were designed to investigate the effects of fertilizer (Urea-phosphate) and oil-utilizing bacteria on the alteration of oil applied to plots in the Norman Wells area, N.W.T. and the Swan Hills area of north central Alberta. The relationship between the chemical composition of three oils originating in the Mackenzie Valley and two from the Saskatchewan area and their microbiological digestibilities, were investigated under laboratory conditions at 4 deg. and 30 deg. C. Soil and muskeg samples from the Mackenzie Valley area were also screened at 4 deg. and 30 deg. C for the presence of micro-organisms capable of using Prudhoe Bay crude oil as their sole carbon source. ... (Au)

Q-63762
The past and future land : an account of the Berger Inquiry into the Mackenzie Valley pipeline / O'Malley, M.
[Toronto] : Peter Martin Associates Limited, [1976].
x, 281p. : figures, map, photos. ; 23cm.
ISBN 0-88778-149-7
ACU, SSU

The Mackenzie Valley Pipeline, if it is built, will be the largest single development project ever undertaken in the Western World. It will alter forever the nature of the world's largest remaining unexploited river valley. It will also change, forever, the lives of the Canadians who inhabit that river valley - Dene, Inuit and "other". The Past and Future Land is a book about those people, their land and the proposed pipeline. ... their voices are heard here just as they have been heard by Mr. Justice Thomas Berger whose Inquiry into the Mackenzie Valley Pipeline has produced one of the most important, and most exciting public dialogues in Canadian history. ... Martin O'Malley followed the Inquiry from the beginning and in this ... book he offers a sharply etched portrait of land and people, partly in the words of the people themselves, partly in his own .... (Au)

Q-63916
An environmental research program for drilling in the Canadian Beaufort Sea / Hnatiuk, J.
(Proceedings - Conference on Arctic Systems, St. John's, Newfoundland, August 18-22, 1975 / Edited by P.J. Amaria, A.A. Bruneau, and P.A. Lapp. New York : Plenum Press, 1977. Nato conference series : II. Arctic systems : v. 2, p. 237-256, figures, tables)
Paper presented at the 26th Annual Technical Meeting of the Petroleum Society of CIM in Banff, June 11-13, 1975.
References.
ACU, SSU, NFSMO

A multi-million dollar environmental research program consisting of thirty-three wildlife, biological, oceanographic, meteorological, sea ice and oil clean-up studies related to the southern Beaufort Sea is described. The studies are designed to provide ecological baselines, a better understanding of the physical environment, knowledge related to the consequences of a possible oil spill and means of oil clean-up in ice-infested waters. ... Government agencies co-ordinate the program with considerable management and scientific input from oil industry personnel. ... (Au)

Q-64025
Northern frontier, northern homeland : the report of the Mackenzie Valley Pipeline Inquiry / Canada. Mackenzie Valley Pipeline Inquiry. Berger, T.R.
Ottawa : [Supply and Services Canada, 1977].
2v. : ill. (part. col.) ; 28cm.
ISBN 0-660-00775-4
Commissioner: Thomas R. Berger.
Reviewed by documents number 7951, 7960, 7978, and 7986.
ACU, SSU

... Volume One ... deals with the broad social, economic and environmental impacts that a gas pipeline and an energy corridor would have in the Mackenzie Valley and the Western Arctic. In it certain basic recommendations are made. Volume Two ... set[s] out the terms and conditions that should be imposed if a pipeline is built. (Au)

Q-65811
Meeting the Arctic challenge / Pallister, J.M.
(APOA review, v. 4, no. 1, May 1981, p. 9-17, ill., maps)
Further reading: p.17.
ACU, NFSMO

This article defines permafrost, sea ice and the environment as the main challenges to petroleum operations in the north. Presented are some of the systems and solutions being investigated to deal with each unique condition, with particular reference to the five main areas attracting the oil companies: Norman Wells, Mackenzie Delta region, Beaufort Sea, Lancaster Sound/Baffin Bay and the Davis Strait. (ASTIS)

Q-66583
Exploratory drilling : the polar challenge / Harrison, G.R.
(Proceedings - World Petroleum Congress, 10th, Bucharest, 9-14 September, 1979. London : Heyden, [1980], v. 2, p. 243-251, figures, photos.)
ACU

In 1976, marine drill systems were applied in the Arctic Ocean for the first time. These systems are engaged in oil and gas exploratory drilling 350 km north of the Arctic Cricle in the Canadian portion of the Beaufort Sea. They are operated by Canadian Marine Drilling Ltd. (Canmar) .... These systems comprise a fleet of Canadian flag vessels including ice-reinforced drillships, ice-breaking support vessels and a staging base at Tuktoyaktuk. ... The ships, drilling programs and operating practices are specially designed for and have proved effective in ice conditions that occur during a four month period each year from July through October. Drilling results are promising. ... Drilling difficulties arise from unique factors such as permafrost and hydrates caused by cold temperatures that existed during the recent history of this geological basin. Special measures are required to prevent ice damage to wellheads caused by the keels of ice floes which plow the sea bottom. Operational research and development has upgraded the technology of these first drill systems and brought about realistic concepts for second generation systems. More recently, the focus of this research has been widened to find the technology needed for offshore production and marine transportation of oil and gas in the Arctic Ocean. (Au)

Q-67660
Canol - a northern pipeline 35 years later.
(Pipeline, 1981, Mar., p.[1]-[2], photos.)
ACU

The Northern ecosystem can respond on its own and in some ways be enhanced as a result of development .... Built, operated and abandoned in a span of three years from 1942 to 1945, Canol was likely the most hurried, shortlived project of this scale ever undertaken in the north. Unlike pipeline projects today, little effort was made to protect the environment. ... a 120 km (75 mi.) segment of the Canol located above timberline in the Northwest Territories ... has remained virtually untouched since abandoned 35 years ago. Revegetation and associated recovery in this tundra section of the project have been natural. ... (Au)

Q-69264
Oiled debris disposal and storage sites : Beaufort Sea coast / Hardy (R.M.) and Associates Limited. Canada. EPS. Environmental Emergency Branch. Research and Development Division.
[Ottawa : Environmental Protection Service, Dept. of the Environment], 1979.
ix, 250p. : ill., figures, maps (fold.), photos., tables ; 28cm.
(Economic and technical review report - Canada. EPS. Environmental Impact Control Directorate, EPS-3-EC-79- 3)
ISBN 0-662-10419-6
Prepared for the Research and Development Division, Environmental Emergency Branch, Environmental Impact Control Directorate, Environmental Protection Service, Environment Canada.
Appendices.
References.
ACU

A study was performed to locate landfill disposal and temporary storage sites for oiled debris from sand and shingle beaches along the Beaufort Sea Coast from the Alaska-Yukon border to Cape Bathurst. Approximately 217 landfill disposal sites and 223 temporary storage sites have been located. These sites are shown on 1:150,000 scale strip maps and on 1:20,000 to 1:70,000 scale aerial photographs in the report. This study involved establishing guidelines for site selection, design, construction and reclamation for landfill disposal sites, temporary storage sites and access roads. Limitations on construction, utilization and reclamation due to seasonal problems with terrain stability, logistics support and cost effectiveness were considered. All of the sand and shingle beaches in the study area were identified using aerial photographs and these beaches are shown on 1:150,000 scale strip maps. In addition, alternative or novel landfill disposal and temporary storage techniques were reviewed. (Au)

Q-71323
Government contingency plans for the Beaufort Sea / Mansfield, B. Hoffman, J.M.
(Spill technology newsletter, v. 3, no. 6, Nov.-Dec. 1978, p. 19-23)
ACU, NFSMO

... The most serious potential impact from offshore exploratory drilling in the Beaufort Sea ... [is] the risk of an oilwell blowout. The concern for such an event arising ... resulted in a series of technical and environmental operating conditions being attached to the Drilling Authorities which are the site-specific final approvals to drill a well. This concern also led to two other interrelated initiatives on the part of the Government: (1) to begin an intensive research and development program of new and improved Arctic oilspill countermeasures techniques and equipment; and (2) to develop a "back-up" Government Contingency Plan for major oil spills in the Beaufort Sea. This latter project is the main subject of this paper .... (Au)

Q-71331
The test - Beaufort response exercise - BREX III / Hoffman, J.M. Mansfield, B.
(Spill technology newsletter, v. 3, no. 6, Nov.-Dec. 1978, p. 24-30)
ACU, NFSMO

In the 1970's the Canadian Government decided to issue drilling permits for oil and gas exploration in certain areas of the Beaufort Sea. In recognition of the remoteness of the areas and the potential for damage in the Beaufort ecosystem, the Canadian Government sponsored the development of a plan to deal with a major spill incident or oil well blowout. ... As part of the development process for the plan, two exercises BREX I, and II (Beaufort Response Exercise) were held in 1976 and 1977. These exercises made use of scenarios and problem-solving workshops to assist in production of the plan. BREX III was the 1978 exercise designed for the purpose of evaluating the organization and procedures established in the plan. It was more complex than BREX I or II in that it required the application of organizational, managerial, communications and operational procedures in a simulated setting. The exercise objectives included: evaluation of the capacity of the organization to plan, direct and control response to a major oil spill in the Beaufort Sea; identification of organizational and procedural gaps in the plan and supporting documents; and familiarization of participants with the working relationships in this special organization. BREX III was held from 31 May to 2 June 1978 in the Yukon Territory Government offices, Whitehorse. ... (Au)

Q-71340
Incendiary device for oil slick ignition / Meikle, K.M.
(Spill technology newsletter, v. 6, no. 2, Mar.-Apr. 1981, p 46-53, figures, table)
References.
ACU, NFSMO

This article describes results of tests carried out at McKinley Bay to compare the ability of two incendiary devices, a canister-shaped device and a sandwich configuration, to ignite oil slicks on Arctic melt pools and other remote water surfaces. (ASTIS)

Q-71366
Dome Petroleum's oil and gas undersea ice study / Dome Petroleum Limited. Buist, I.A. Pistruzak, W.M. Dickins, D.F.
(Spill technology newsletter, v. 6, no. 3, May-June, 1981, p. 120-146, figures, tables)
References.
ACU, NFSMO

... To tie all the previous work on oil migration and in situ burning together, Dome undertook a major oil spill experiment during the winter of 1979/80 in the Beaufort Sea. Dome's objective in this field experiment was to determine how successful burning would be as a countermeasure and to optimize burning techniques for oil and gas released from a Beaufort Sea blowout under ice. ... The experiment took place in three phases, approximately eight kilometres offshore in McKinley Bay in the Beaufort Sea, in first-year sea ice. Approximately 19 cubic m of crude oil were discharged under the ice in conjunction with gas (air). This oil surfaced in the spring in pools thick enough to burn. Some 80% of the oil discharged was removed from the marine environment. (Au)

Q-72125
Marine transportation of Arctic hydrocarbons / McKenzie, M.B. Johansson, B.M. Dome Petroleum Limited.
(Proceedings - Offshore Technology Conference, 11th, Houston, Texas, April 30-May 3, 1979. Dallas : Offshore Technology Conference, 1979, v. 4, p.2367-2376)
(OTC paper, 3631)
Document not seen by ASTIS. Citation from MRIS.
NFSMO

Arctic marine delivery systems provide an alternative to pipelines in transporting oil and gas from the Arctic, particularly for extensive geological plays identified offshore the Alaskan north slope, in the Canadian Beaufort Sea, and in the Canadian Arctic Islands. Arctic class ships must be able to operate year round in these areas and have a minimum capability of breaking eight feet of first-year level ice continuously. To achieve this, ships will have to be constructed to strength levels even greater than that required by Canadian regulations. ... Arctic marine development program is working to demonstrate the feasibility of Arctic marine transport by 1982, and to build commercial Arctic ships for 1985 operation. The AML-SX4, to be operational this year, is one in a series of research vessels to be tested in the program. (MRIS)

Q-72761
[Proceedings] - Federal Environmental Assessment Review Office Seminar on the Beaufort Sea/Mackenzie Delta Development Plan, November 13, 1980 / Federal Environmental Assessment Review Office Seminar on the Beaufort Sea/Mackenzie Delta Development Plan, November 13, 1980. Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea. Klenavic, J.
[s.l.] : International Reporting Inc., [1980].
93 p. : 28 cm.
ACU

[The purpose of this seminar was] to inform participants about the review process, [to hold] a presentation on the initial plans of the proponent, and then to discuss the issues that those present saw as germane to the review. This is a transcript of the seminar excluding the presentation of the proponents which was to be available separately. (Au)

Q-72770
Hydrocarbon development in the Beaufort Sea - Mackenzie Delta region / Dome Petroleum Limited. Esso Resources Canada Limited. Gulf Canada Resources Inc.
[S.1.:s.n.], 1981.
1 microfiche : ill., figures, maps ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE31)
ACU

... In July 1980, the Minister of Indian and Northern Affairs announced ... that hydrocarbon development in the Beaufort Sea-Mackenzie Delta Region would be reviewed through the Federal Environmental Assessment and Review Office (FEARO) of the Department of Environment. ... (FEARO) has requested that the Environmental Impact Statement ... must project the possible effects of responsible development to the year 2000. ... up to now [FEARO] has not required any industry to project the effects of development over such a long period of time. ... Identifying possible impacts is a vital part of impact assessment and development planning. This evolving process begins with scenarios based on the industries' best estimate of technical requirements. Aspects of initial scenarios are modified to enhance benefits and mitigate environmental and social problems during the preparation of the EIS and ongoing development planning. At the present time, this evolving process is underway. It will be completed in the fall of 1981. Hence, the scenarios presented ... in this document are to be viewed as those which may be technically achievable but not necessarily those which, in the final EIS analyses, are considered acceptable. (Au)

Q-72788
The Beaufort Sea hydrocarbon production proposal : draft guidelines for the preparation of an environmental impact statement / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea.

[Ottawa] : Beaufort Sea Environmental
Assessment Panel, 1981.
36, 11 leaves ; 28 cm.
Appendices.
Text in English and French.
ACU

... The Beaufort Sea Hydrocarbon Production Proposal was referred ... in July 1980 for a Panel review. The Department of Indian Affairs and Northern development (DIAND) is the initiator and the proponents are Dome Petroleum Limited, Gulf Canada Resources Inc. and Esso Resources Canada Limited. In referring the proposal, the Minister of Indian Affairs and Northern Development indicated that the Panel review was to consider the effects north of 60 deg. N latitude of hydrocarbon production in the Beaufort Sea, including transportation routes to southern markets. ... the review was to encompass socio-economic as well as environmental effects. ... Consistent with the letter of referral these draft Guidelines have been prepared as a first step towards completing the Guidelines that will be issued by the Panel to DIAND as a basis for the preparation of an Environmental Impact Statement (EIS) by the proponents .... Before the Guidelines are completed, any person or organization, including government departments and agencies, the oil and gas industry, public interest groups, native organizations, northern residents and other members of the public, will have an opportunity to review and comment on them. Public meetings to discuss the draft Guidelines will be held by the Panel. ... (Au)

Q-72796
Summary of draft (first version) environmental impact statement guidelines for community use: the Beaufort Sea hydrocarbon production proposal / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea.
[Ottawa] : Beaufort Sea Environmental
Assessment Panel, 1981.
11 leaves ; 28 cm.
ACU

The following is a report intended to help those people in communities most likely to be affected by the production of oil and gas in the Beaufort Sea area and transportation to market. It is not meant to replace the official first version of the Environmental Impact Statement Guidelines which has already been distributed to the public. The report is to help community members understand the way the government has decided to get public opinion as well as to provide an understanding of the first version of the Environmental Impact Statement Guidelines. (Au)

Q-73784
A comparison of benthic invertebrate population densities at two artificial islands in the Beaufort Sea / Osborne, J.M. Nixon, J.K.
Yellowknife : Environmental Protection Service,
Environment Canada, [1980?].
[13] leaves · ill., figures, tables ; 28cm.
Paper presented at the Government-Industry Symposium: Research on Environmental Fate and Effects of Drilling Fluids and Cuttings, January 21-24, 1980, Lake Buena Vista, Florida.
References.
ACU

Adgo C-15 and Adgo J-27 are artificial islands constructed by Esso Resources Canada Ltd. for exploratory drilling in the Beaufort Sea. Adgo C-15, constructed and drilled in 1975, used drilling mud contaminated with mercury, zinc, arsenic and various other heavy metals. Adgo J-27, constructed in 1975 and drilled in 1979, used drilling mud that was very low in heavy metal concentrations. Both islands are in the direct influence of the Mackenzie River Plume, in about 2 m. of water. This study investigated the differences in benthic invertebrate populations between the two islands in relation to heavy metal concentrations in the sediments. Invertebrate population densities were examined and correlated with concentrations of metals in the sediments. Multiple regression analysis was used to determine correlations between sediment contamination and invertebrate density. ... There was no correlation between metal concentrations in the sediments and density or distribution of invertebrates but invertebrate density at one island is significantly different from the other island. It appears that the presence of the island may have caused a more favourable habitat to be produced. (Au)

Q-73822
Development of Beaufort Sea hydrocarbons : an opportunity for Canadian industry / Dome Petroleum Limited. Todd, M.B.
(Frontier oil and gas development - the decade ahead : proceedings / Environmental Workshop, 10th, Montebello, P.Q., 28 April - 1 May, 1981. Calgary : Arctic Institute of North America, 1981. Special publication - Arctic Institute of North America, p. 61-87, figures)
ACU, NFSMO

Canada is one of the few countries in the world that has the capability to become energy self-sufficient in this decade. ... There is another potential benefit, however .... That benefit results from the industrial stimulation associated with the development of new oil and gas reserves .... The undeveloped frontier hydrocarbons which will make Canada self-sufficient in the next decade are not easily accessible and require technical innovation and sophisticated equipment and facilities in order to bring the product to market. The development of the necessary technology in Canada and the construction and operation of the facilities to develop, produce, transport and process the oil and gas will provide attractive opportunities for every area of the country, particularly those where strong industrial bases have already been established. ... (Au)

Q-74152
The Scottish and Alaskan offshore oil and gas experience and the Canadian Beaufort Sea / Nelson, J.G. Jessen, S.
Ottawa : Canadian Arctic Resource Committee;
Waterloo : Faculty of Environmental Studies,
University of Waterloo, 1981.
xix, 155p. : ill., figures, tables ; 23cm.
ISBN 0-919996-22-1
Appendices.
References.
ACU

This report is organized around the Management Assessment Model .... Chapters two, three, four, and five are devoted to the main divisions of the model: agency, planning, implementation, and general guides or characteristics. Most of the information pertains to Scotland, although much is also included on Alaska. In chapter six, the experience in the Shetlands - and to a lesser extent, Alaska - is considered in greater detail and some major points of comparison are made about the environment and the economic, social, and political circumstances within which oil development has taken place. Chapter seven includes detailed information on the major oil development effects in the Shetlands and the extent to which these have been controlled by the management system. The final chapter contains a summary of the major principles that have emerged, especially from the Shetlands experience. Recommendations are also made for the management of Canadian

Beaufort Sea oil and gas development. (Au)

Q-74195
North American Arctic review / Cottrill, A.
London : Offshore Engineer, 1981.
52p. : ill., figures, maps, col. photos., tables ; 28cm.
(Offshore engineering. Supplement, Aug. 1981)
ACU, NFSMO

... the Arctic has increased ever more in significance for the offshore oil and gas industry, with major Canadian discoveries now close to being declared commerical and with the start of drilling an Alaska's Beaufort Sea. In preparing this review, OE international editor Adrian Cottrill has talked with top engineers in all the major Canadian and U.S companies with Arctic interests, to provide the most comprehensive review yet published of Arctic events, outlook and state-of-the-art. (Au)

Q-74381
Compendium of written submissions to the Panel on the Draft Environmental Impact Statement guidelines / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea.
[Ottawa] : Beaufort Sea Environmental Assessment Panel, 1981.
107 leaves ; 28 cm.
ACU

The submissions contained in this document result from a request by the Environmental Assessment Panel for public and government agency input to the development of a set of Guidelines for the preparation of an Environmental Impact Statement (EIS) by Dome Petroleum Limited, Esso Resources Canada Limited and Gulf Canada Resources Incorporated. The EIS is to describe predicted environmental and socio-economic effects associated with the Dome-Gulf-Esso proposal to extract oil and gas from the Beaufort Sea/Mackenzie Delta area and transport it to markets. These submissions, along with submissions received by the Panel at the public meetings to be held in November and December, 1981, will be used by the Panel to make amendments to the draft guidelines and produce a final set for transmittal to Dome, Gulf and Esso. (Au)

Q-77542
Employee adjustment and effectiveness : arctic oil explorations of Gulf Oil Canada : 1973-74. Volume II : economic analysis : an economic evaluation of the Gulf Northern Resident Employee Program / De Pape, D. Wight, I..
Edmonton : Westrede Institute, 1974.
xiv, 136p. : ill. ; 28cm.
Document not seen by ASTIS.
ACU

An economic evaluation of Gulf's Northern Resident Employment Program as implemented in the Mackenzie Delta operations during the 1972-73 and 1973-74 seasons. (NPB)

Q-77720
Norman Wells oilfield development and pipeline = Developpment du champ petrolifere et du pipeline de Norman Wells / Canada. Federal Environmental Assessment Review Office.
Hull : Federal Environmental Assessment Review Office, 1981.
98, 103p. : ill., maps ; 28cm.
(Report - Canada. Federal Environmental Assessment and Review Process, 16)
ISBN 0-662-51155-7
Text in English and French.
Document not seen by ASTIS.

Environmental impact assessment report which concludes that, before the project can proceed, important deficiencies in the Proponents' planning and in the preparedness of government need to be rectified. (NPB)

Q-78913
Beaufort / Dome Petroleum Limited. Esso Resources Canada Limited. Gulf Canada Resources Inc.
v.1, no.1(Aug. 1981)- .
[Calgary : Dome Petroleum Limited], 1981- .
ill. ; 28cm.
ACU, NFSMO

Beaufort is published ... to provide the general public, and interested parties, background information on the long range development and production of hydrocarbon fuels from the Beaufort Sea and Mackenzie Delta. In terms of engineering and technical skills production is attainable in this region by the mid-80s. Before approval in principle is obtained from the federal government, a detailed report on the possible effects and impacts of such production must be prepared. This report, known as the Environmental Impact Statement, was completed in the fall of 1982. The E.I.S. addresses issues and concerns raised by the production scenario. Beaufort is continuing to report on the progress of E.I.S. activities and the energy industry's evolving plans. (Au)

Q-79430
Encouraging strikes spur search in U.S., Canadian Beaufort Sea.
(Oil and gas journal, v. 79, no. 51, Dec. 21, 1981, p. 21-26, figures)
ACU, NFSMO

This article presents a run down on Beaufort Sea leases currently being tested. The Beaufort Sea prospects are discussed and evaluated from both the Canadian and American perspectives. (ASTIS)

Q-79634
Micro-efforts in the massive Beaufort / Douglas, B.
(Canadian petroleum, v. 22, no. 2, Feb. 1981, p. 52-53, figure)
ACU, NFSMO

The vast computing abilities in today's microprocessors are assisting Dome Petroleum in its progress toward production from the Beaufort Sea. The various applications of mini-computers and the question of suitable models and hardware are discussed. (ASTIS)

Q-80462
Burning of crude oil under wind herding conditions / Energetex Engineering. Canadian Marine Drilling Limited [Sponsor].
Waterloo, Ontario : Energetex Engineering, 1981.
3 microfiches : ill., figures, tables ; 10 X 16 cm.
(COOSRA project report, no. CS02)
Appendices.
References.
ACU

This report describes the results of field experiments conducted in Waterloo, Ontario and McKinley Bay, Northwest Territories between December, 1979 and May, 1980. The project involved three main phases: wind herding or natural containment tests of crude oils on a water surface; combustion tests with wind-herded slicks; and the combustion of snow/oil mixtures in ice cracks. ... Results from these tests for all oil types, showed a good correlation between the thickness of the oil slick and the two factors of wind velocity and oil volume. An increase in any of the two factors results in a corresponding increase in oil slick thickness and consequently the efficiency of wind herding. ... A mathematical model of the effect of wind on the burning of crude oil is presented, which can be used to compare the theoretical results with the experimental combustion results. (Au)

Q-80470
Oil & gas under sea ice study / Buist, I.A.
Dickins, D. Dome Petroleum Limited.
[Calgary : Dome Petroleum Limited, 1980].
15 microfiches : ill., figures, plates, tables ; 10 X 15 cm.
(COUSRA project report, no. CS04V1-2)
Appendices : volume 2.
References.
ACU, NFSMO

..., Dome Petroleum undertook to simulate a sub-sea blowout under first year ice. The major objectives of this experiment were: 1) to further understand how oil and gas behaved when discharged under ice; 2) to field test various clean-up techniques, particularly in situ burning using air-deployable igniters; 3) to assess the capability to cleanup oil spilled from a sub-sea blowout under ice; and 4) to investigate water-in-oil emulsion formation. ... Overall, approximately 80% of the total oil discharged was removed from the marine environment by in situ burning, evaporation and manual cleanup.... Overflights and shoreline surveys subsequent to breakup revealed no traces of the remaining oil. ... (Au)

Q-80616
Oil! Prospecting for hydrocarbons with geochemical models / Snowdon, L.R.
(Geos, v. 10, no. 4, Fall 1981, p. 6-10, ill., figures)
ACU, NFSMO

Locating prolific high quality source rocks is vital where exploration and exploitation costs are high. Modelling provides oil companies with a sophisticated exploration tool, and helps governments in resource evaluation and management. A different oil generation model was developed for the Beaufort-Mackenzie Basin. This model satisfactorily explains the petroleum discoveries made in wells drilled from Issungnak, an island built by ESSO Resources in the Beaufort Sea. (Au)

Q-80683
Socio-economic review of the Beaufort Sea drilling program 1976-1979 / N.W.T. Foster, T.
[Ottawa : Dept. of Indian and Northern Affairs, Northern Affairs Program], 1980.
39p. : figures, tables ; 28cm.
Appendix.
ACU

Because a comprehensive review of the 1979 drilling season was not undertaken this report largely utilizes statistical information whereas in previous years a substantial amount of information gathered in the field was used. This report presents a socio-economic overview of the four years of drilling in the Beaufort Sea, emphasizing economic aspects more than social. The economic and social impact of any sizeable development is impossible to determine without detailed fieldwork over time. This has not been possible. As an alternative generally acceptable indicators have been monitored. In theory, abrupt changes in the indicators suggest economic and social change. These indicators are presented in the following pages. (Au)

Q-80691
Review of the 1980 Beaufort Sea drilling program / Canada. Northern Affairs Program.
Ottawa : Dept. of Indian and Northern Affairs, 1981.
26p. : figures, 28cm.
Appendix.
ACU, NFSMO

As directed by Cabinet in May 1976, and confirmed by Cabinet in Spring, 1980, Dome Petroleum Ltd.'s Beaufort Sea Drilling program conducted by Canadian Marine Drilling Co. (CANMAR) has been subjected to an annual comprehensive review. This report informs Cabinet of the findings from a review of social-economic-cultural matters, environmental impact and technical aspects of Dome Petroleum/CANMAR's 1980 operations in the region of the Beaufort. (Au)

Q-80705
Technical review of the 1979 Beaufort Sea drilling program and overview of 1976-79 / Canada. Northern Affairs Program.
[Ottawa : Dept. of Indian and Northern Affairs, 1980].
52p. : figures ; 28cm.
Appendices.
ACU, NFSMO

The regulatory conditions of the Department of Indian and Northern Affairs (DINA) for drilling in the Beaufort Sea during 1979 were virtually the same as in 1978, except for end-of-season termination procedure for drilling operations. ... In addition to these restrictions, the Ice Alert System ... was modified and updated so that operations could be terminated at any time throughout the season, dependent only on assessment of hazards due to weather, ice and sea conditions or of a meteorological forecast. This report is concerned with the technical review of the Dome/Canmar drilling operations in 1979, and is based on data provided by the Regional Oil and Gas Conservation Engineering staff in the N.W.T. (who conducted the technical surveillance of drilling operations), by Dome/Canmar, and by the Department's engineering and geological staff Headquarter's (Ottawa). This assessment complements other separate reviews of the environmental and socio-economic aspects of the Dome/Canmar 1979 operation. (Au)

Q-80799
Development and testing of the AMOP boom / Meikle, K.M.
(Proceedings - Arctic Marine Oilspill Program Technical Seminar, 4th, Edmonton, Alberta, June 16-18, 1981, p. 307-321, figure, table)
References.
ACU, NFSMO

No offshore boom research and development was undertaken during the first year of AMOP. The Arctic boom had been developed specifically for the Beaufort Sea, several offshore booms were commercially available, the development of improved equipment for use in ice-free waters was underway in the United States, Norway and elsewhere, and it had been accepted for the time being that no further effort would be expended on development of Canadian offshore booms. (Au)

Q-80853
Dome Petroleum's oil and gas undersea ice study / Buist, I.A. Pistruzak, W.M. Dickins, D.F. Dome Petroleum Limited.
(Proceedings - Arctic Marine Oilspill Program Technical Seminar, 4th, Edmonton, Alberta, June 16-18, 1981, p. 647-686, figures, tables)
References.
ACU, NFSMO

To tie all the previous work on oil migration and in situ burning together, Dome undertook a major oil spill experiment during the winter of 1979/80 in the Beaufort Sea. Dome's objective in this field experiment was to determine how successful burning would be as a countermeasure and to optimize burning techniques for oil and gas released from a Beaufort Sea blowout under ice. ... (Au)

Q-83380
Disposal of waste drilling fluids in the Canadian Arctic / Beak Consultants Ltd. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1974.
4 microfiches : ill., figures, tables ; 11x16cm.
(APOA project no. 73 : Research program on pollution from drilling fluids. Report)
Appendices.
References.
ACU, NFSMO

... environmental aspects of disposal practices of drilling fluids in the shallow marine environment from offshore exploration wells on the Mackenzie Delta [were examined]. This study included extensive literature reviews and laboratory testing to document the delta environment, drilling fluid characteristics, the status of waste drilling fluid treatment technology, and related pollution problems. The rigorous and extremely seasonal environment of the delta and the nature of the resident biotic communities can readily accomodate the discharge of waste drilling fluids. No serious consequences of direct sea bed disposal were indentified. ... No additional treatment is recommended and no environmental advantage is seen in land disposal. The solids settle rapidly in saline waters blanketing the local bottom sediments. The effect of this to the delta ecosystem is insignificant. No serious environmental disruption or pollution hazard is likely from sea bed disposal. (Au)

Q-83852
Beaufort Sea monopod conceptual design / Swan Wooster Engineering Company Limited. Khanna, J. Lindsay, R.M. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1973.
2 microfiches : ill. ; 11x16cm.
(APOA project no. 110 : Conical and cylindrical gravity structures for southern Beaufort Sea. Report, no. 1)
Appendices.
ACU, NFSMO

This report describes the conceptual design for a steel Monopod structure for use as a year-round semi-mobile petroleum drilling platform in the offshore waters of the Beaufort Sea at locations with 10-30 feet of water. The purpose of this report is two-fold, first, to provide technical information for use in a preliminary submission by Imperial Oil Limited to the Government, and second to provide a basis for final design of the concept by Earl and Wright, Consulting Engineers. Design and Operating Criteria ... are presented herein. ... The procedures for the construction and transportation of the Monopod to the drilling locations are described and project schedules are developed. ... The Mechanical Support Systems for the Monopod are outlined and a general layout of the various storage areas provided. ... The site preparation procedures are described including a discussion of the dredging equipment and the expected tolerances on the preparation of the sea bed. ... (Au)

Q-83879
A monopod drilling system for the Canadian Beaufort Sea / Imperial Oil Limited.
[Calgary : Distributed by APOA], 1973.
6 microfiches : ill., tables ; 11x16cm.
(APOA project no. 110 : Conical and cylindrical gravity structures for southern Beaufort Sea. Report, no. 3)
Appendices.
References.
ACU, NFSMO

This report describes a year-round Monopod-type drilling system for use in shallow waters in the Canadian Beaufort Sea. ... In addition to the engineering design work, the report contains comprehensive design criteria and environmental data acquired and developed from 22 studies and field projects. ... (Au)

Q-83887
Monopod drilling unit for the Beaufort Sea : design criteria / Earl and Wright Consulting Engineers. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1973.
2 microfiches : ill. ; 11x16cm.
(APOA project no. 110 : Conical and cylindrical gravity structures for southern Beaufort Sea. Report, no. 4)
Appendix.
ACU, NFSMO

The design specifications for a monopod for the Beaufort Sea are presented. Such aspects as : structural design criteria, mechanical support systems, storage capacities, heating and ventilation criteria, well drilling system, electrical system, and ice load capacity are discussed. (ASTIS)

Q-83895
Monopod drilling unit for the Beaufort Sea : cost estimate / Earl and Wright Consulting Engineers. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1973.
3 microfiches : ill., tables ; 11x16cm.
(APOA project no. 110 : Conical and cylindrical gravity structures for southern Beaufort Sea. Report, no. 5)
ACU, NFSMO

The cost estimate for a monopod for the Beaufort Sea is outlined. The cost estimate includes a break down of: shipyard contract, owner-furnished equipment, engineering and overhead, Canadian subsidy and interest, and mobilization costs. (ASTIS)

Q-83909
Monopod drilling unit for the Beaufort Sea : final cost estimate / Earl and Wright Consulting Engineers. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1974.
6 microfiches : tables ; 11x16cm.
(APOA project no. 110 : Conical and cylindrical gravity structures for southern Beaufort Sea. Report, no. 6)
Appendix.
ACU, NFSMO

The final cost estimate for a monopod for the Beaufort Sea is outlined. The cost estimate includes a break down of: shipyard contract, owner-furnished equipment, engineering and overhead, Canadian subsidy and interest, and mobilization costs. (ASTIS)

Q-83917
Monopod drilling unit for the Beaufort Sea specifications : construction and outfitting / Earl and Wright Consulting Engineers. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1974.
7 microfiches : tables ; 11x16cm.

(APOA project no. 110 : Conical and cylindrical gravity structures for southern Beaufort Sea. Report, no. 7)
Appendices.
ACU, NFSMO

These specifications and contract drawings are intended to contain the requirements and information governing the materials, construction, outfitting, equipping and all appurtenances and their installation, of a complete seaworthy, bottom supported, enclosed drilling unit, ready for operation, to the Owner's requirements. ... The contract includes the supply and installation of all materials, labor, machinery, equipment, furnishings and fittings other than equipment and materials supplied by the Owner; and the installation of materials, machinery, equipment, furnishings and fittings supplied by the Owner. ... (Au)

Q-83925
Model tests of the Imperial monopod drilling unit / Offshore Technology Corporation. Earl and Wright Consulting Engineers. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1973.
2 microfiches : ill., graphs, tables ; 11x16cm.
(APOA project no. 110 : Conical and cylindrical gravity structures for southern Beaufort Sea. Report, no. 9)
Appendices.
ACU, NFSMO

Model studies of the Imparial Arctic Monopod drilling unit were conducted to determine the vessel's seakeeping, towing, and lowering characteristics. Motions and accelerations were measured during regular and irregular wave seakeeping tests. Resistance curves in three sea states were determined. The vessel's ballasting characteristics were observed and documented. This report covers the model, test set-ups and test results. (Au)

Q-83933
Beaufort Sea monopod shear key test program / Swan Wooster Engineering Company Limited.
Johansen, C. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1974.
1 microfiche : ill. ; 11x16cm.
(APOA project no. 110 : Conical and cylindrical gravity structures for southern Beaufort Sea. Report, no. 12)
Appendix.
ACU, NFSMO

This report describes the shear key test program which .... will consist initially of a series of model laboratory tests, and subsequently a series of field tests, of the shear key system used in the design of the Beaufort Sea steel Monopod. The main objective of the model tests is to verify analytical procedures used in the shear key design. In particular, it is intended to verify the efficiency of shear keys as influenced by normal pressure. ... In addition, the model tests are expected to yield significant qualitative information such as the type of failure, expected movements during failure, and the effects of adhesion. (Au)

Q-83941
[Engineering drawings for monopod drilling unit] / Earl and Wright Consulting Engineers.
Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1973.
3 microfiches : ill. ; 11x16cm.
(APOA project no. 110 : Conical and cylindrical gravity structures for southern Beaufort Sea. Report, no. 13)
ACU, NFSMO

Various design aspects of the monopod are presented; these include: general hull, general structure and general superstructure arrangements. (ASTIS)

Q-83950
A preliminary report on a concrete monopod concept / Swan Wooster Engineering Company Limited.
Khanna, J. Downie, K.A. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1974.
1 microfiche : ill. ; 11x16cm.
(APOA project no. 110 : Conical and cylindrical gravity structures for southern Beaufort Sea. Report, no. 14)
ACU, NFSMO

A steel Monopod has been designed for use as an exploratory drilling platform in the Canadian Beaufort Sea in water depths of up to 60 feet. Due to the large estimating costs of the steel Monopod, the question has been raised whether sizeable economy can be gained through the use of concrete instead of steel for a major portion of the Monopod structure. ... This report describes a preliminary assessment of the feasibility of a concrete Monopod for which a detailed design has been provided by Earl and Wright .... The design loads used for the concrete Monopod structure are essentially the same as those used for the steel Monopod. (Au)

Q-83968
Beaufort Sea monocone conceptual design / Swan Wooster Engineering Company Limited. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1974.
8 microfiches : ill., tables ; 11x16cm.
(APOA project no. 110 : Conical and cylindrical gravity structures for southern Beaufort Sea. Report, no. 15, 16)
Volume 2: Appendices.
Bibliography.
Contents: Considerations in the use of high-strength concrete for the monopod concrete hull / B.H. Levelton and Associates Ltd. - Naval architecture desk calculations / Swan Wooster Engineering Company Limited.
ACU, NFSMO

The Beaufort Sea Monocone Conceptual Design report was commissioned to investigate the feasibility and cost of certain concrete-hulled, bottom-founded, petroleum, exploration drilling structures suitable for year-round location in the shallow coastal waters of the Beaufort Sea. ... In general this report finds the Monocone concept technically feasible. Each section contains a number of recommendations for further work the more important of which are listed here without sugggesting that the remainder should not be considered. (Au)

Q-83976
A preliminary report on a fixed concrete cone / Swan Wooster Engineering Company Limited.
Boyd, A.D. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1974.
1 microfiche : ill. ; 11x16cm.
(APOA project no. 110 : Conical and cylindrical gravity structures for southern Beaufort Sea. Report, no. 18)
ACU, NFSMO

[This report] is a brief study ... of the cost advantage associated with substituting a fixed concrete cone for the sliding steel conical collar of an equivalent Monocone. The disporportionately high cost of the steel collar for relatively shallow water Monocones (up to 70 feet of water) made such a study desirable. Results indicate a saving of some $24 Million, or about 30% of the cost of a Monocone, with only a minimal loss of lightship draft. The study required a preliminary design of the thick wall concrete conical shell while the hull was generally adopted from the Monocone with only minor changes. Further work is necessary prior to detail design but it would appear that for up to 70 feet of water and given the high cost of fabricated steel, the fixed cone may be the best alternative for a mobile gravity platform. (Au)

Q-84123
Monocone model tests / Canada. National Research Council. Division of Mechanical Engineering. Low Temperature Laboratory. Browne, R.P. Swan Wooster Engineering Company Limited. Imperial Oil Limited [Sponsor].
[Calgary : Distributed by APOA], 1975.
2 microfiches : ill. ; 11x16cm.
(APOA project no. 110 : Conical and cylindrical gravity structures for southern Beaufort Sea. Report, no. 11)
(Report - Canada. National Research Council. Division of Mechanical Engineering. Low Temperature Laboratory, LTR-SH- 174)
Appendix.
ACU, NFSMO

... a comprehensive series of model tests were carried out at the Marine Dynamics and Ship Laboratory of NRC in order to evaluate hydrostatic and hydrodynamic aspects of the design of a proposed monocone structure for exploration of hydrocarbon deposits beneath the sea in Arctic regions. ... Model tests were carried out to determine: a) The performance on tow of the gravity base and the conical collar, both separately and assembled, from a construction site on the West coast of Canada to the Canadian Arctic, the tests including course stability and resistance in calm water and motions and resistance increase in waves. b) The procedures for set-down of the monocone base alone in 60 ft. of water, leveling the trim of the conical collar alone using water ballast, and set-down and lift-off of the complete structure in 135 ft. of water. ... c) The hydrodynamic drag associated with moving the structure from one exploration site to another by partial unballasting and tilting of the base on the sea bed and subsequent dragging along the bottom. (Au)

Q-84263
Petroleum hydrocarbons in arctic ringed seals, Phoca hispida, following experimental oil exposure / Engelhardt, F.R.
(The proceeding of the Conference on Assessment of Ecological Impacts of Oil Spills, 14-17 June, 1978, Keystone, Colorado. - [Arlington, Va.] : American Institute of Biological Sciences, 1978, v. 2, p. 613-628, figures, tables)
References.
ACU

Ringed seals, Phoca hispida, showed rapid absorption and clearing of hydrocarbons from Norman Wells crude oil in body tissues and fluids when exposed experimentally by immersion and ingestion. Measured fluorometrically, relatively low but significant levels were found in tissues, blood, and plasma following external exposure. Levels in bile and urine were higher, indicating these to be routes of excretion. (Au)

Q-86843
Records of the Mackenzie Valley Pipeline Inquiry / Cook, T.
Ottawa : Public Archives Canada, 1980.
viii, 5p., 5p ; 28cm.
(General inventory series - Canada. Federal Archives Division, RG 126)
ISBN 0-662-5-774-9
Text in English and French.
ACU

Under its Commissioner, Thomas R. Berger, the Mackenzie Valley Pipeline Inquiry had a significant influence on the federal government in particular and Canadian public opinion in general. Attention was focused by the Inquiry and by the extensive media coverage it received not only on oil and gas resources in the North and suitable methods for their transportation to southern markets, but also on all aspects of life in the North: Indian and Inuit culture, native land claims, ecological and environmental issues, social affairs, wildlife, and governmental structures. The publicity generated by the Inquiry's hearings and its final recommendations led to the abandonment of plans to build a pipeline down the Mackenzie River Valley and shifted attention to the Alaska Highway and other routes for bringing northern resources to southern markets. With the approval of Mr. Justice Berger, the records of the Mackenzie Valley Pipeline Inquiry were transferred to the Public Archives of Canada ... from the Department of Indian Affairs and Northern Development. ... (Au)

Q-87556
The oil spill trajectory data bases for Beaufort Sea and tanker route simulations / Arctic Sciences Limited. Marko, J.R. Cuypers, L.E. Birch, J.R. Fissel, D.B. Lemon, D.D. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
vii, 99 p. : ill., tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD16)
Appendix.
References.
ACU

As part of the documentation required in support of its proposal for oil production in the Beaufort Sea, Dome Petroleum Ltd. has assessed the potential impact of the project upon the environment in terms of a finite number of specific spill scenarios in which oil enters the marine environment from accidental events such as production-well blow-outs and tanker explosions and groundings. ... The present report is intended to provide a detailed description of the methods used to calculate the movements and distributions of the spilled oil masses. The description is divided into two main components, namely: the underlying oil trajectory model ... and the specific configurations of wind, current and ice chosen for each of the scenario calculations .... In each case indications are given of the accuracy of both the calculational assumptions and the representations of the acting environment. In the latter instance justifications are also provided for our particular choices of "typical" environmental conditions. (Au)

Q-87564
Analysis of accidents in offshore operations where hydrocarbons were lost / Gulf Research and Development Company. Houston Technical Services Center. Goodwin, R.J. Warlick, W.P. Teymourian, P. Krieger, W.F. Gulf Canada Resources Inc. [Sponsor].
[Calgary : Dome Petroleum Limited, 1982?]
iv, 111 p. : ill., figures, tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD19)
Appendix.
References.
ACU

Data for 2,501 worldwide offshore operational accidents (1955 to mid-1980) were analyzed in order to establish causes for the accidents and to identify methods to prevent such accidents in future development and production operations in the Beaufort Sea. The majority of information used in this report comes from the U.S. Gulf of Mexico - Outer Continental Shelf ... the North Sea - United Kingdom ... and Alaska State Waters .... The data are presented in 103 graphical plots and the text contains a separate discussion for each plot. Appendix A contains a description of each of 46 accidents, an analysis of the causes for each accident, and the methods that might have prevented each accident. ... Development and production operations in the Beaufort Sea will parallel the same operations carried out in other parts of the world. Even though the Beaufort Sea environment will present special problems associated with extreme cold, ice and long periods of darkness, it is nonetheless valid to apply the analytical results of this study to operations in that area. (Au)

Q-87572
Analyses of Beaufort Sea and Prudhoe Bay crude oils / Mackay, D. Hossain, K. Shiu, W.Y. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1980.
1 v. (various pagings) : ill., tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD25)
References.
ACU

When crude oil is spilled on water it is subject to physical, chemical and biological processes which control the oil's location, area, thickness, and the extent of transfer to the atmosphere by evaporation and into the water column by dissolution and dispersion. ... In this paper we address the question of which properties should be measured, how they should be measured, and provide some illustrative data for selected crude oils. ... Three oils were studied; an oil from Prudhoe Bay used in the 1980 Beaufort Sea Experimental Spills at McKinley Bay; a sample of Kopanoar crude oil supplied by Canmar in late 1979 and a sample of Kopanoar crude oil supplied earlier and believed to be contaminated with an unknown amount of other oils, possibly diesel fuel. The latter oil, referred to here as the "Kopanoar mixture", was not subjected to the same degree of analysis because of its uncertain history. (Au)

Q-87580
Oil spill simulations in the southeastern Beaufort Sea, 1969 - 1978 / Arctic Sciences Limited. Marko, J.R. Foster, C.R. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
1 v. (various pagings) : ill., figures ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD14)
References.
ACU

This report presents the results of 10 annual simulations (1969-1978) of the fate of oil discharged from a continuously running blowout in the southeastern Beaufort Sea. The periods simulated ran from July 15 to October 30 and the blowout site was chosen as (70.3 degrees N, 135 degrees W). These results supplement and expand the statistical basis of an earlier simulation of the August 1-September 30, 1978 period (Marko and Foster, 1981), utilizing the same surface current configurations, spreading assumptions, dissipation and wellhead data, and calculational procedures .... (Au)

Q-87599
Pipeline installation protection and repair feasibility study, Beaufort Sea - Mackenzie Delta / Brown (R.J.) and Associates. Dome Petroleum Limited [Sponsor]. Esso Resources Canada Limited [Sponsor]. Gulf Canada Resources Inc. [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
1 v. (various pagings) : ill., figures (some folded), tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD22)
References.
ACU

Hydrocarbon discoveries in the southern Beaufort Sea have prompted the petroleum industry to seek approval for offshore pipeline development within the Mackenzie Delta Region. The objective of this study is to review the representative offshore development scenario ... and to demonstrate the feasibility of pipeline design and installation in this area. ... The development scenario which has been selected for evaluation consists of trunklines and inter-island gathering lines (flowlines) which represent typical development of the fields at Tarsiut, Kopanoar and Issungnak. ... (Au)

Q-87602
Tanker oil spill study / Det norske Veritas. Larsen, G. Larsen, P. Bratas, K. Skaug, E. Karlen, J.E. Canadian Marine Drilling Limited [Sponsor].
[Calgary : Dome Petroleum Limited, 1979].
[175] p. : ill. ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD18)
References.
ACU

As a part of the underlying material for consideration by Canadian Marine Drilling Ltd. when designing an arctic oil tanker, DnV has carried out a study of past tanker oil spill incidents. These are incidents recorded in the period between January 1967 and December 1978, incorporting spills larger than 200 tons. The first phase of the study is mainly an investigation of past tanker incidents in the period given in order to find any trends behind the incidents, whereas in phase two, the study is focusing on a number of the better documented of the incidents treated in phase 1. This is done in detail as was felt necessary in order to establish the correct sequence of events leading to the various incidents, and also the resulting damages and the amount of oil spilled. The results are used to recommend operational procedures, installation of equipment and constructional features on the planned arctic tanker. (Au)

Q-87610
Final report on Arctic tanker risk analysis / F.G. Bercha and Associates Limited. Canadian Marine Drilling Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
1 v. (various pagings) : ill., tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD21)
References.
ACU

... The risk analysis was based on conventional tanker accident statistics, accident case studies, and Arctic tanker design information. Spill accident scenarios were developed and portrayed in fault tree networks, as sequences of events leading from basic, initiating events, to a release accident. ... After the adjustment of those basic event probabilities that would be reduced by Arctic tanker design features, and the adjustment of route-related probabilities to reflect Arctic conditions, the safety advantage of the Arctic tanker was evaluated. ... The general conclusion reached is that the risk for an Arctic tanker would be at least two orders of magnitude smaller than that of the conventional tanker, where risk is measured as spill volume expected per barrel transported. In addition to the overall spill risk comparison, which showed the Arctic tanker to operate with 120 to 160 times less risk than the conventional tanker, sensitivity analysis methods were applied in order to evaluate the risk reduction attributable to each of the Arctic tanker's design features. The greatest benefits were found to result from the Arctic tanker's strengthened double hull, segregated ballast construction, and tank inerting system. (Au)

Q-87769
Banks Island development environmental considerations, 1974 research studies, v.1-3 / Beak Consultants Ltd. Panarctic Oils Ltd. [Sponsor]. Elf Oil Exploration and Production Canada [Sponsor].
[Calgary : Distributed by APOA], 1975.
12 microfiches : ill., maps, tables ; 11x16cm.
(APOA project no. 74 : Banks Island development environmental considerations. Report, v. 1-3)
Appendices.
References.
ACU, NFSMO

This study was designed to evaluate the impact of summer petroleum exploration activity on Banks Island, N.W.T. Specific emphasis was placed on the potential impact that year round drilling operations might have on the terrain and wildlife of the Island. The project included: a) permafrost active layer measurements, and b) studies of bird, white fox, muskoxen, caribou, and other wildlife populations, and their habitants; in order to determine what effect summer drilling activities would have on same. (Au)

Q-88838
Sump studies II - Geothermal disturbances in permafrost terrain adjacent to Arctic oil and gas wellsites / French, H.M. Smith, M.W. Canada. Northern Affairs Program. Canada. Arctic Land Use Research Program [Sponsor].
Ottawa : Indian and Northern Affairs Canada, Northern Affairs Program, 1980.
vi, 61 p. : ill., tables ; 28 cm.
(Environmental studies - Canada. Northern Environmental Protection and Renewable Resources Branch, no. 14)
ISBN 0-662-10961-9
Appendix.
References.
ACU

Two sumps, one at the Panarctic Bent Horn I-01 wellsite on Cameron Island and the other at the Gulf Ogruknang M-31 wellsite in the Caribou Hills were instrumented during the 1976-77 winter to monitor geothermal conditions in the enclosing permafrost. Numerical simulation based upon observed field data is used to predict geothermal changes. Bent Horn I-01 was a one season winter drilling operation; Ogruknang M-31 was a two season winter drilling operation in which the sump was left open during summer and infilled during the second winter. At I-01 sparse data indicate that sump fluids froze virtually instantaneously upon entering the sump and have remained frozen after site restoration. At M-31 the sump fluids were not completely frozen at the time of infilling. At both sides, permafrost temperatures beneath the sump rose significantly during the period of well drilling. Data from M-31 indicate (a) temperatures at a depth of 0.5 m below the sump floor rose rapidly from -14 to -4 degrees C during the early stages of sump use and then rose slowly to -0.5 degrees C by mid September 1977, (b) thawing of permafrost during the summer of 1977 was restricted to the sump walls, (c) at a depth of 2.5 m below the sump floor geothermal disturbances became minimal, and (d) by July 1978, temperatures at a depth of 2.0 m below the sump floor had achieved a quasi-equilibrium of -1 to -2 degrees C. These data suggest that the use of below ground sumps to contain waste drilling fluids at the two localities described does not lead to permafrost degradation, and that sump fluids, if not completely frozen at the time of infilling, eventually freeze in situ in the permafrost. ... (Au)

Q-88862
The degradation of crude oils in northern soils / Wing Ng, T. Ying Shiu, W. Reuber, B. Canada. Northern Affairs Program. Canada. Arctic Land Use Research Program [Sponsor].
Ottawa : Indian and Northern Affairs Canada, Northern Affairs Program, 1980.
iv, 38 p. : ill., tables ; 28 cm.
(Environmental studies - Canada. Northern Environmental Protection and Renewable Resources Branch, no. 18)
ISBN 0-662-11308-X
Appendices.
References.
ACU

... This report reviews the many physical and biological processes which cumulatively determines the rate at which the oil is degraded, and hence control the duration of the recovery period. Also reviewed is the feasibility and desirability of enhancing recovery rates by artificial measures such as containment, fertilizing, or burning. The results of several experimental studies are reported and their implications discussed. These include observations and analyses made at oil spill sites at Norman Wells, Inuvik, Tuktoyaktuk and Richards Island (NWT). Results are presented of the recovery rates of a series of experimental spill sites in Southern Ontario. A laboratory study of oil evaporation rates from soils is described in which equations have been developed and validated which permit these rates to be calculated for the first time. Sampling and analytical procedures have been developed for improved sampling and monitoring of oiled soil sites. A novel vapour extraction procedure has been devised to permit quantitative recovery of volatile soil components. ... The implications of the results for enhancing rehabilitation of oiled sites are discussed and recommendations are made for procedures for mitigating the effects of oil spills on arctic terrain. (Au)

Q-89010
Effects of seismic activity on the behavior and activity of muskrats on the Mackenzie Delta / Westworth, D.A. Canada. Northern Affairs Program. Canada. Arctic Land Use Research Program [Sponsor].
Ottawa : Indian and Northern Affairs Canada, Northern Affairs Program, 1980.
vii, 68 p. : ill., tables ; 28 cm.
(Environmental studies - Canada. Northern Environmental Protection and Renewable Resources Branch, no. 15)
ISBN 0-662-10950-3
Appendices.
References.
ACU

Studies were conducted from January to May 1977 to determine the effects of seismic activity on the normal behavior and activity of muskrats. The Study Area consisted of an 11 ha lake located at 68 degrees 33' N latitude and 134 degrees 27' W longitude in the east central part of the Mackenzie Delta ... Seismic drilling contributed to a short-term decrease in levels of activity, apparently the result of associated helicopter disturbance. It had no effect however, on either daily activity rhythms or number of daily movements. Post-blasting activity patterns did not differ significantly from predisturbance levels in terms of either mean daily activity or number of daily movements. ... Seismic activity had no discernible effect on use of muskrat dwellings. Pushup use was not related to either distance from disturbance or distance from bank burrows. Changes in burrow use included a significant increase in use of the burrow nearest a shothole, indicating the absence of an avoidance reaction after blasting. (Au)

Q-89281
Oil spill simulations in the southeastern Beaufort Sea and along the proposed eastern tanker route / Arctic Sciences Limited. Marko, J.R. Foster, C.R. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
[67] p. : ill., figures ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD17)
References.
ACU

This report presents the results of 15 simulated accidental releases of oil into the Arctic marine environment. The types and locations of the individual releases are believed to be typical of expectations during the summer-fall season of maximum human activity in the proposed Beaufort Sea oil production area and along associated tanker routes. ... (Au)

Q-89621
Employee adjustment and effectiveness : arctic oil explorations of Gulf Oil Canada : 1973-74. Volume I : sociological analysis / Hobart, C.W.
Edmonton : Westrede Institute, 1974.
222 p. ; 30 cm.
Appendices.
ACU

This report presents the results of a continuing study of the efficiency of the Gulf Canada northern exploration employment program, and of the impact of its Northern Native Employment program on native communities. ... The present report, [includes] .... a comparative analysis of the work effectiveness .... There is some discussion of the effects of the Native Employment program .... The study of the economic costs to Gulf Canada of its Northern Native Employment program is separately bound in a report by DePape and White entitled Employee Adjustment and Effectiveness: Arctic Oil Explorations of Gulf Oil Canada, 1973-74 Vol. II Economic Analysis. ... (Au)

Q-89702
Mackenzie Delta Study Group : phase 1 report : socio-economic programs / Basham, F.C.
Vancouver, B.C. : Gemini North Ltd., 1974.
i, 39 leaves ; 29 cm.
References.
Document not seen by ASTIS.
QMMNS

Basham reports on the gas development in the Mackenzie Delta area. He includes demographic analysis and employment potential. (LET)

Q-90115
Revegetation and impact assessment studies in the Mackenzie River region / Hardy Associates (1978) Limited. Esso Resources Canada Limited [Sponsor].
[S.l.] : Hardy Associates (1978) Ltd., 1980.
3 microfiches : ill., figures, tables ; 11 X 15 cm."
(Beaufort E.I.S. reference work, no. RWE18)
Appendix.
References.
ACU

... Revegetation and impact assessment studies established in the Mackenzie River Valley and Delta regions in the early 1970's were evaluated for Esso Resources Canada Ltd. in 1979. These included four major areas of study: revegetation by seed and fertilizer, revegetation by sod replacement, the impacts of snow road construction and use and the winter spillage of methanol/water solutions on vegetation cover and active layer thickness. The findings of these long-term studies, together with those of previous years are reviewed and provide the basis for the following general conclusions. ... 1. Revegetation of highly disturbed areas in the Mackenzie Region by seeding and fertilizing is a practical means of assisting in erosion control and reestablishment of the natural plant community. However, ... success ... is dependent on ... geographic location (climate) and soil texture ... 2. Revegetation in tundra by sod replacement will assist the rate at which the natural plant community will reestablish and will retard permafrost thaw. ... 3. Construction and use of a snow road through an open black spruce forest for one season resulted in no significant long-term effects to percent vegetation cover, active layer thickness or surface elevation. ... 4. The winter spillage of water/methanol solutions can result in substantial long-term damage to the vegetation cover. ... (Au)

Q-91383
An evaluation of the economic impact of a Mackenzie Valley Gas Pipeline on the northern territories / Manders, P.M.
Ottawa : DIAND, 1973.
74 leaves : ill., map ; 28 cm.
(North of 60)
References.
Document not seen by ASTIS.
QMMNS

The purpose of this paper is to estimate the economic impact of the construction and operation of a major gas pipeline on the two northern territories. The estimated economic impact for each period (construction and operation) is discussed under the two main headings of labour employment and incomes and territorial government revenues. The discussion of labour employment and income includes an analysis of the estimated demand for and supply of labour related to pipeline activities, and the incremental revenue streams accruing to labour as a result of pipeline employment. (NPB)

Q-91464
Canol pipeline : a history of the Norman Wells to Whitehorse oil pipeline.
(Beaufort, v. 1, no. 4, May 1982, p. 4-7, ill.)
ACU

This article gives the history of the first major oil pipeline built in the Canadian Arctic in 1942. Because of the wartime secrecy surrounding its construction, the Canol pipeline story has been relatively unknown. (ASTIS)

Q-91480
Overland pipeline system from the Beaufort.
(Beaufort, v. 1, no. 4, May 1982, p. 14-16, ill.)
ACU

This article discusses the design and construction of the overland pipeline system in northern Canada. (ASTIS)

Q-91502
Subsea pipelines for the Beaufort.
(Beaufort, v. 1, no. 4, May 1982, p. 20-23, ill.)
ACU

This article discusses the design and construction of a network of interlinked subsea pipelines in the Beaufort Sea. (ASTIS)

Q-92002
The biological effects of hydrocarbon exploration and production related activities, disturbances and wastes on marine flora and fauna of the Beaufort Sea region / ESL Environmental Sciences Limited. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1982.
xv, 450 p. : figures, tables, 28 cm.
(Beaufort E.I.S. support document, no. BEISSD01)
References.
ACU

This report summarizes existing information on the potential biological effects of activities, disturbances and wastes associated with petroleum hydrocarbon exploration and production. Since this is a supporting document to the Dome/Esso/Gulf Environmental Impact Statement for Beaufort Sea Hydrocarbon Production, primary emphasis has been placed on the biological resources of this region as well as the activities, wastes and disturbances which may be associated with this development. Major sections of the report discuss the biological effects of (1) common disturbances, activities and wastes, (2) wastes and disturbances associated with both exploration and production drilling, (3) production, storage and transportation-related sources of disturbance, and (4) environmental emergencies including gas blowouts, crude oil spills or blowout, and refined fuel spills. A separate section describing the biological effects of chemically dispersed oil has been included within the discussion of environmental emergencies since this cleanup measure, if approved and undertaken, could result in significantly different biological effects than those which may be associated with crude or refined oils alone. ... (Au)

Q-92037
Identification and delineation of impactors of shorebase and support activities / Montreal Engineering Company Ltd. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1979.
1 v. (various pagings) : figures, tables (some folded) ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD04)
Appendix.
References.
ACU

The objective of this study is to provide as concise a statement as possible ... of the nature, zone of influence, and duration in time of the various impactor functions associated with shorebase development. ... This report is presented in 5 parts. ... Part 1 serves as an introduction to the study and sets the scope of work. Part 2 describes the characterization of the shorebase into project components, then defines the scale of impact of these components; impact indicators. The Impactor Function Matrix then illustrates how these two criteria are combined to develop the overall magnitude of shorebase impacts. Part 3 presents the results of the study and fulfills the study objective. Part 4 presents the time factors developed to present the one platform to 16 platform development sequence. Part 5 applies the results of Part 3 to the shorebase development scenario for Tuktoyaktuk presented in the Impact Source Study and thereby serves as an example and summary of the method of measuring the impact of Beaufort shorebase development presented in this report. (Au)

Q-92070
Biological impacts of three oil spill scenarios in the Beaufort Sea / ESL Environmental Sciences Limited. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1982.
1 v. (various pagings) : figures, tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD12)
References.
ACU

The following sections discuss the potential local and regional impacts of a hypothetical tanker collision on the marine resources of the southeastern Beaufort Sea. Information regarding the marine flora and fauna which could be affected by an oil spill in this area was obtained from LGL and ESL (1981), Volume 3A (Chapter 3.0) as well as original literature cited in these overviews. Primary sources of information regarding the biological effects of petroleum were a recent summary and evaluation of 100 oil spill case histories ... and several reviews of laboratory research concerning the effects of petroleum hydrocarbons. ... (Au)

Q-92088
A prospectus on the biological effects of oil spills in marine environments / ESL Environmental Sciences Limited. Duval, W.S. Martin, L.C. Fink, R.P. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
1 v. (various pagings) : figures, tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD13)
Appendix A: Data sheet spill files: 1-53, 55-108 / L.C. Martin and R.P. Fink.
References.
ACU

... One of the best predictive tools for analysis of the biological consequences of oil spills are the case histories and followup studies associated with past spills. This study examines the documented effects of oil spills as a function of the circumstances surrounding past spills and the biological resources affected. The overall purpose of this investigation was to summarize our current state of knowlege regarding the biological effects of oil spills on coastal marine environments. Literature sources and methods used during the completion of this study are described in Section 1.3. An overview of the location, season, type and size of spills that have occurred during the last two decades is presented in Section 2, while Section 3 discusses the documented or suggested biological effects of past spills as a function of oil type, size of spill, time of year, type of environments affected, cleanup response and latitude. Section 3 also discusses the long-term impacts of oil spills and subsequent recovery of various community types, where this information is available. The text of the report is concluded with a summary which identifies dominant biological effects of oil spills (Part 4), as well as probable impacts of spills or blowouts on arctic marine ecosystems (Part 5). Oil spill case history summary data sheets are provided in Appendix A and B, respectively. (Au)

Q-92096
Dome Petroleum Ltd. environmental impact statement oil spill scenario 4 : tanker collision in Lancaster Sound / LGL Limited, Environmental Research Associates. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
vi, 50 p. : figures, tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD15)
References.
ACU

The scenario described in this report is one of a series of descriptions of potential effects of oil spilled under specified circumstances in various areas in the Beaufort Sea and Northwest Passage. In the particular scenario discussed in this report ... an oil-carrying tanker is assumed to be involved in a collision at 74 degrees N 84 degrees W in central Lancaster Sound. ... The following sections describe first the fate of the oil during 21 days from August 20 to September 10 and then the potential effects of this oil on flora and fauna of Lancaster Sound. The trajectory of the oil slick is based on wind and current data collected in 1978. ... (Au)

Q-92100
Mackenzie Delta - Beaufort Sea development plan project description of an onshore crude oil gathering system / Canuck Engineering Ltd. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1982.
15 p. : figures, tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD23)
ACU

Crude oil discoveries have been made in the nearshore and onshore regions of the Mackenzie Delta and Tuktoyaktuk Peninsula. These discoveries ... are relatively small in size compared to the potential of offshore reservoirs. ... The oil from these fields will be shipped to either an overland large diameter pipeline system or to a central terminal such as North Point for subsequent delivery via subsea pipeline to offshore tanker loading facilities .... Based on existing discoveries, it is estimated that approximately 300 km (180 miles) of small diameter buried pipelines would be required in the Mackenzie Delta and Tuktoyaktuk regions. It is expected that additional onshore discoveries will be made over the next 20 years, however, their locations are unknown at this time. Prudent planning of the onshore pipeline network will ensure that future discoveries will be connected into the system via the shortest possible route to minimize disturbance of the sensitive tundra. ... Within the framework of the total development plan, it is expected that onshore production facilities and associated pipeline systems from known reservoirs will be constructed in the late 1980's. (Au)

Q-92126
Mackenzie Delta - Beaufort Sea development plan overland crude oil pipeline system : description of the system for an environmental impact statement / Canuck Engineering Ltd. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
1 v. (various pagings) : figures, folded maps, tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD26)
Appendices.
ACU

This report contains the results of a study for a pipeline project which consists of the construction and operation of an oil pipeline system from the northern tip of Richards Island in the Northwest Territories to Edmonton, Alberta .... Since a considerable portion of the line must be constructed in terrain containing permafrost, it has been designed to accommodate conditions not normally encountered in more southern climates. The project includes a design for the northern areas in which the maximum flowing temperature of the crude oil will be limited to 27 degrees C (80 degrees F) ... In ice-rich soils where thawing resulting from the presence of a buried warm pipeline might cause loss of structural support due to excessive settlement, the pipe will be supported aboveground on steel piles and insulated. ... The pipeline route and major facilities are shown ... (Au)

Q-92193
Beaufort Sea hydrocarbon production Environmental Assessment Panel : terms of reference / Canada Federal Environmental Assessment Review Office Environmental Assessment Panel. Beaufort Sea.
[Ottawa : Beaufort Sea Environmental Assessment Panel], 1981.
10 leaves ; 28 cm.
ACU

The purpose of this document is to delineate the responsibilities of the Environmental Assessmant Panel, the review process it should follow and the expectations that the federal government has for this specific review. The Panel should notify the Minister of the Environment of any major recommendation for revisions or refinements that it may consider necessary to make during the course of the review. (Au)

Q-92207
Environmental impact statement for hydrocarbon development in the Beaufort Sea - Mackenzie Delta region. Volume 3A : Beaufort Sea - Delta setting / Dome Petroleum Limited. Esso Resources Canada Limited. Gulf Canada Resources Inc.
Calgary, Alta. : Dome Petroleum Limited, 1982.
1 v. (various pagings) : ill., figures, tables ; 28 cm.
Cover title: Hydrocarbon development in the Beaufort Sea - Mackenzie Delta region: Environmental impact statement. Volume 3A: Beaufort-Delta setting.
References.
ACU, NFSMO

Volume 3A of the Environmental Impact Statement covers the marine region extending from the Bering Strait in the west through the Beaufort Sea to Amundsen Gulf in the east, and the onshore coastal area from the Yukon-Alaska border through the Mackenzie Delta to Cape Parry. The various aspects of the marine and terrestrial physical environments and marine and terrestrial plants and animals are discussed, presenting an overview of the ecology of this region. (ASTIS)

Q-92215
Environmental impact statement for hydrocarbon development in the Beaufort Sea - Mackenzie Delta region. Volume 3B : Northwest Passage setting / Dome Petroleum Limited. Esso Resources Canada Limited. Gulf Canada Resources Inc.
Calgary, Alta. : Dome Petroleum Limited, 1982.
1 v. (various pagings) : ill., figures, tables ; 28 cm.
Cover title: Hydrocarbon development in the Beaufort Sea - Mackenzie Delta region: Environmental impact statement. Volume 3B: Northwest Passage setting.
References.
ACU, NFSMO

Volume 3B of the Environmental Impact Statement provides the environmental setting for the marine shipping corridor which lies to the east of the Beaufort Sea. The region extends from approximately Banks Island through Viscount Melville Sound, Lancaster Sound, Baffin Bay and Davis Strait, to 60 degrees north latitude in the Labrador Sea. Emphasis has been placed on those subjects deemed to be most relevant for the purposes of assessing possible impacts of shipping operations on the environment .... (Au)

Q-92223
Environmental impact statement for hydrocarbon development in the Beaufort Sea - Mackenzie Delta region. Volume 3C : Mackenzie Valley setting / Dome Petroleum Limited. Esso Resources Canada Limited. Gulf Canada Resources Inc.
Calgary, Alta. : Dome Petroleum Limited, 1982.
1 v. (various pagings) : ill., figures, tables ; 28 cm.
Cover title: Hydrocarbon development in the Beaufort Sea - Mackenzie Delta region: Environmental impact statement. Volume 3C: Mackenzie Valley setting.
References.
ACU

Volume 3C of the Environmental Impact Statement provides the environmental setting for the Mackenzie River Valley pipeline corridor. The 'Mackenzie Valley corridor' extends from the Mackenzie Delta to the Northwest Territories-Alberta border. It includes the Mackenzie River and lands on the adjacent east bank generally 30 to 100 km wide .... The 'Mackenzie River Valley' is generally used to describe lands drained by the Mackenzie River. Emphasis has been placed on those subjects deemed most relevant for the purposes of assessing possible impacts of pipelining operations on the environment .... (Au)

Q-92231
Environmental impact statement for hydrocarbon development in the Beaufort Sea - Mackenzie Delta region. Volume 6 : Accidental spills / Dome Petroleum Limited. Esso Resources Canada Limited. Gulf Canada Resources Inc.
Calgary, Alta. : Dome Petroleum Limited, 1982.
1 v. (various pagings) : ill., figures, tables ; 28 cm.
Cover title: Hydrocarbon development in the Beaufort Sea - Mackenzie Delta region: Environmental impact statement. Volume 6: Accidental spills.
References.
ACU, NFSMO

The purpose of this volume of the Environmental Impact Statement is to describe the potential for and the fate, cleanup and effects of accidental spills of oil and hazardous materials. The geographical regions addressed in this volume are within Canadian lands and waters north of 60 degrees N latitude, and include the Beaufort Sea - Mackenzie Delta region, the Mackenzie Valley and the Northwest Passage, the regions potentially involved in hydrocarbon development .... The focus in this volume is on large crude oil spills, as these are perceived to be a potential major impact associated with the proposed development. Smaller, minor spills of other refined and waste oils and spills of hazardous materials are also discussed at the end of the volume. (Au)

Q-92240
Beaufort Sea Environmental Assessment Panel : operational procedures / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea.
[Ottawa : Beaufort Sea Environmental Assessment Panel], 1981.
Appendix.
ACU

In the Panel's Terms of Reference issued by the Minister of the Environment, the Panel is directed to develop a comprehensive outline of the procedures governing the conduct of its review. The following Operational Procedures which are in response to this directive have been formally adopted by the Panel. The Operational Procedures, which are based in part on the experience of previous Panels, are intended to assist all those wishing to participate in the review. The procedures may be amended by the Panel as required and such amendments will be made public. In order to assist readers in understanding the various terms and expressions used in this document, an Appendix ... on Definition of Terms is included. (Au)

Q-92258
Beaufort Sea hydrocarbon production proposal : interim report of the Environmental Assessment Panel / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea.
Hull, Que. : Federal Environmental Assessment Review Office, 1982.
12, 12 p. : ill. ; 28 cm.
(Report - Canada. Federal Environmental Assessment and Review Process, 19)
ISBN 0-662-51871-3
Text in English and French.
ACU, NFSMO

... This interim report has been prepared following public meetings on the draft Environmental Impact Statement (EIS) Guidelines. ... The Beaufort Sea hydrocarbon production and transportation proposal was referred in July 1980 by the Honourable John Munro, Minister of Indian Affairs and Northern Development, for a formal public review under the EARP. The letter of referral requested that physical, biological and socio-economic effects associated with the proposal be considered and that meetings be held to obtain public input into the completion of the Guide-lines for the preparation of an EIS. The EIS is to be prepared by the proponents of the proposal: Dome Petroleum Limited, Gulf Canada Resources Inc. and Esso Resources Canada Limited. ... (Au)

Q-92266
Environmental impact statement for hydrocarbon development in the Beaufort Sea - Mackenzie Delta region. Volume 5 : Socio-economic effects / Dome Petroleum Limited. Esso Resources Canada Limited. Gulf Canada Resources Inc.
Calgary, Alta. : Dome Petroleum Limited, 1982.
1 v. (various pagings) : ill., figures, tables ; 28 cm.
Cover title: Hydrocarbon development in the Beaufort Sea - Mackenzie Delta region: Environmental impact statement. Volume 5: Socio-economic effects.
References.
ACU

The objectives of the volume are: to clarify and predict the possible magnitude and nature of oil and gas generated growth and development in the northern territories; to demonstrate how such growth may affect northern populations, economic structures and social institutions; and to recommend policies that would enhance the positive and beneficial aspects of oil and gas development and mitigate the negative aspects. (Au)

Q-92312
Offshore drilling for oil in the Beaufort Sea : a preliminary environmental assessment / Milne, A.R. Smiley, B.D.
Victoria, B.C. : Beaufort Sea Project, 1976.
1 microfiche : figures ; 11 X 16 cm.
(Technical report - Canada. Beaufort Sea Project, no. 39)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 39)
ACU, NFSMO

... This report is an environmental assessment and by assuming hypothetical worst-case oil well blowout scenarios, examines the nature of the transport and fate of oil in the Beaufort Sea and draws conclusions regarding the impact of the oil on the environment, including climate, seabirds, marine mammals and other marine organisms. ... Assuming a "worst-case" sub-sea oil well blowout, major conclusions are [presented]. (Au)

Q-92320
Gulf's proposed drilling systems for the Beaufort Sea / Marks, A.
(APOA review, v. 5, no. 2, Fall 1982, p. 9-12, figures, tables)
ACU, NFSMO

Gulf's concept is comprised of three basic elements: first, two special design non-propelled drilling units; second, four support ships; and third, two bases for logistical support. The drilling systems will be used to explore land-holdings where Gulf is the operator, that is, 1.5 million acres in the Beaufort. Gulf is committed to an exploration program from 1983 to 1988 in the Beaufort at an estimated cost of one billion dollars. (Au)

Q-92371
1982 Beaufort Sea planning model / Dome Petroleum Limited. Esso Resources Canada Limited [Sponsor] Gulf Canada Resources Inc. [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
1 v. (various pagings) : figure ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD33)
ACU

The Beaufort Sea Planning Model was developed ... to assist in analyzing the development options available for the Beaufort Sea-Mackenzie Delta Region. ... The model allows planners to test various assumptions related to development which assist in narrowing down scenarios to a small group of feasible schemes. ... final selection of a development plan for the Beaufort Sea-Mackenzie Delta Region will still be based on discovery rates, operational practicality, technical and economic feasibility as well as social and environmental concerns. The planning model is not intended to predict a specific development plan but rather to indicate the requirements (within a reasonable order of magnitude) necessary to attain different levels of activity. ... Some of the requirements indicated by the output are: dredge volumes, number of islands, number of drill rigs, manpower, steel tonnage, machinery, ships, capital flow and transfer payments. ... The main factors considered in the model which control the timing of development are the construction of production islands offshore and the construction of onshore production facilities. (Au)

Q-92428
An evaluation of the effects on terrestrial wildlife and freshwater fish of the proposed development of a shorebase support facility, a rock quarry and associated roads on the Yukon north slope / LGL Limited, Environmental Research Associates. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1982.
vii, 95 p. : figures, tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD34)
References.
ACU

A "King Point Development Zone" consisting of 70 square km is being considered for development by Dome Petroleum Ltd. This zone is located within the Northern Yukon Park Wilderness Area which, in 1978, was withdrawn from further development by an Order-in-Council. The wilderness area includes a segment of the calving grounds of the Porcupine caribou herd, and the lowlands and coastal waters are used by hundreds of thousands of migrating and staging waterfowl. Current plans for the King Point area include two separate developments: 1. a quarry site and transportation facilities for providing the large quantities of rock required for armour in off-shore islands, 2. the establishment of a major shorebase support facility. ... This report provides a preliminary assessment of the potential impacts of activities associated with the quarry site and the shorebase developments on the terrestrial wildlife and freshwater fish in these areas. ... (Au)

Q-93238
Description of the shorebase network.
(Beaufort, v. 2, no. 1, Aug. 1982, p. 7-9, ill.)
ACU

Over the many years that the oil industry has been exploring the Mackenzie Delta and Beaufort region, logistical support for these activities has been provided by a network of shorebases and marine docks. Currently the most important centre for these support systems is Tuktoyaktuk, where two of the major operators, Esso and Dome, have major facilities and Gulf is building a base of operations as well. ... (Au)

Q-93254
Aircraft and helicopters : their importance to northern operations.
(Beaufort, v. 2, no. 1, Aug 1982, p. 14-16, ill.)
ACU

Aircraft are an essential link in the transporation chain from southern Canada to the Mackenzie Delta and Beaufort Sea. The movement of people and high priority freight is entirely dependent upon fleets of airplanes and helicopters. ... (Au)

Q-93262
Supply lines to the Beaufort Sea : the story of logistical support for northern exploration.
(Beaufort, v. 2, no. 1, Aug. 1982, p. 17-19, ill.)
ACU

An offshore drilling and exploration program like that in the Beaufort Sea would not be possible without a pyramid of logistical support services, linking the Arctic region to southern resupply centres, and sending an orderly stream of equipment, perishable goods, drilling supplies, fuel and other material to the Mackenzie Delta. All modes of transportation are used to resupply the Beaufort operations including trucks driving over the Dempster Highway and winter ice roads, barges towed up the Mackenzie River, ocean going ships and large transport aircraft and helicopters. ... (Au)

Q-93270
Communications and survey services.
(Beaufort, v. 2, no. 1, Aug. 1982, p. 20-23, ill.)
ACU

There are many technical support services vital to an offshore exploration program and two of the most important, but often overlooked, are communications and survey. Providing communications, both voice and data links, for oil industry operations is more difficult in an isolated region such as the Beaufort and oil companies have had to draw upon several kinds of new communications technology. The variety of traffic, whether it be boats, airplanes or trucks, as well as the changing positions of the drillships and other offshore stations, and the heavy demand for continuous links between onshore, offshore and southern head offices, dictate that no single method of communication will suffice. ... All of the companies in the Beaufort region require extremely accurate positioning to conduct exploration and construction programs. This support requirement is called survey .... A survey group is responsible for navigation/positioning for drilling, dredging and marine operations generally. ... (Au)

Q-93408
Entrepreneurial opportunities in relation to Mackenzie Highway and Pipeline development / RMC Resources Management Consultants Ltd. N.W.T. [Sponsor].
[Ottawa? : s.n.], 1974.
vii, 364 p. : figures, tables ; 28 cm.
(Report - Canada. Task Force on Northern Oil Development, no. 74- 33)
Appendices.
ACU

The objectives of this study were ... to identify entrepreneurial opportunities which may result from pipeline and/or highway development in the western N.W.T. ...[and] to assess the viability of these opportunities with a view to maximization of local participation in those which are financially feasible. It was felt that the best way to accomplish these objectives was to take an action-oriented approach rather than an academic one. ... Expressed in very general terms it involves applying the best technical and entrepreneurial expertise available to a given opportunity in conjunction with local, unskilled, less entrepreneurially-oriented human resources on a joint venture basis. ... There is a severe financial constraint to implementation of the study findings. The Indian Economic Development Fund (I.E.D.F.) is at present the only practical source of concessional development financing available in the N.W.T. for projects of this kind and magnitude. ... no structure exists which would enable non-Indian N.W.T. residents to avail themselves of these opportunities. This constraint can only be alleviated by access to a non-ethnically based development financing facility. (Au)

Q-93548
Environmental impact statement for hydrocarbon development in the Beaufort Sea - Mackenzie Delta region. Volume 1 : Summary / Dome Petroleum Limited. Esso Resources Canada Limited. Gulf Canada Resources Inc.
Calgary, Alta. : Dome Petroleum Limited, 1982.
1 v. (various pagings) : ill., figures, tables ; 28 cm.
Cover title: Hydrocarbon development in the Beaufort Sea - Mackenzie Delta region: Environmental impact statement. Volume 1: Summary.
Appendices.
ACU

This volume provides an overview of the main body of the Environmental Impact Statement contained in Volumes 2, 3A, 3B, 3C, 4, 5, 6 and 7. It begins with a BRIEF REVIEW, intended to capture the essence of this volume and some of the major issues related to Beaufort development. CHAPTER 1 describes the need for oil, the development plan proposed to extract the oil and the possible Canadian benefits which would result. ... CHAPTER 2 examines the Beaufort Sea-Mackenzie Delta region, the principal area where the ongoing exploration and production related activities would take place. This chapter provides a brief description of its regional features, followed by a summary of possible environmental and socio-economic impacts in the region. CHAPTER 3 considers the Northwest Passage region, the area through which Arctic tankers would travel to deliver Beaufort Sea oil to eastern Canadian markets. CHAPTER 4 focuses on the Mackenzie Valley region, the area which would be most affected by an overland pipeline, another transportation option to deliver oil. At the end of this volume, an APPENDIX outlines the companies involved in the preparation of the Environmental Impact Statement and describes how it was produced. (Au)

Q-93599
Old Crow, Y.T. and the proposed Northern Gas Pipeline / Stager, J.K. Canada. Environmental-Social Program, Northern Pipelines [Sponsor].
[S.l. : s.n.], 1974.
vi, 233 p. : figures, maps in pocket, tables ; 28 cm.
(Report - Canada. Task Force on Northern Oil Development, no. 74- 21)
Appendices.
Bibliography: p. 208-211.
ACU

This study is to provide the basis for an assessment of the consequences of building and operating a trunk gas pipeline through the northern Yukon upon the social and economic life of the people of Old Crow, Y.T. ... The report in various places tells of the inrush of the outside world and the pressure upon the community and its leadership to agree, to decide, to make up its mind, to say what it wants. ... Over half the people get more than half their food from the land. ... At the same time there is a rise in the income from wages and some people are prepared to leave the village for work, training and school. ... The existence of wage opportunities and the prospect of them increasing, leads to economic independence of individuals. This, in turn, can break down the interdependence among people, affects the cohesiveness of the family, and may cause personal destruction through gambling and liquor. ... wages are not all bad. Cash is now a necessary item because people wish to travel more, purchase goods outside, have new skidoos or kickers, improve the house and be able to feed and clothe their families adequately. ... The pipeline project will offer plenty of chance to work, at least in the construction period. ... What is less predictable is the aftermath. ... The positive effects like training, increased wealth and experience could be dissipated or go unused after the project finishes. However, if there were one, two or three more jobs on a permanent basis for Old Crow men as a result of the pipeline, then a few more families would have economic security; the value of this prospect is recognized and desired. ... (Au)

Q-94862
Island construction in the Beaufort Sea / Esso Resources Canada Limited. Dingle, P.J.
Edmonton, Alta. : Esso Resources Canada Ltd., [1982?].
15 leaves : figures (some col.) ; 28 cm.
Cover title.
References.
ACU, NFSMO

... This paper focuses on the Canadian Beaufort Sea where potential oil reserves are estimated to be 36 million barrels. The construction of artificial islands is one of the key elements of exploration and development programs in the Beaufort. ... Since 1972, Esso Resources Canada Ltd. has constructed 16 artificial exploration islands in this area. Island design criteria for temporary islands include the ability to resist ice forces and summer wave erosion, island fill and seabed foundation stability, sufficient area to support a drilling rig and related activities. ... future islands will be located in the Western Beaufort, an area where sources of construction material are scarce. The advantages of dredged islands for exploration provide incentive to modify existing design and construction methods for their continual use. One promising concept is the caisson-retained island which would substantially reduce material requirements. A second key to economical projects lies in an efficient and effective equipment spread. Possible combinations under consideration include trailer suction hopper dredges, stationary suction dredges and self-propelled or conventional bottom dump barges. With continued exploration, commercial production in this frontier area is foreseeable. Further development will be needed in the areas of providing permanent production platforms and transporting crude to southern markets. This points to a long term need for dredging in oil exploration and production in this area of the world. (Au)

Q-95702
A plan for recruitment and training in the operational phase of the proposed gas pipeline / Alberta. University. Boreal Institute for Northern Studies. Canadian Arctic Gas Study Limited [Sponsor].
Edmonton : s.n., 1972.
5 v. : tables ; 29 cm.
References.
Contents: Pt. 1: A strategy for recruitment and training procedures in the operational phase of the proposed gas pipeline. - Pt. 2: Some aspects of the social and economic impact of the proposed gas pipeline. - Pt. 3: Demographic data: District of Mackenzie: - Pt. 4: Appendices. - Pt. 5: Appendices.
ACU

This report, set out in five parts, represents the work of an interdisciplinary research team which was organized by the Boreal Institute for Northern Studies at The University of Alberta, to develop a plan for the recruitment and training of northerners in the operational phase of the proposed gas pipeline. ... the first three parts of the study comprise the substantive material. Parts IV and V provide relevant background information which supports the creative part of the study and illuminates some of the conclusions and recommendations which the study contains. ... We felt it important to examine the history of past industrial projects which have involved the training and employment of native people, as well as to provide some commentary on a number of successful recent training and employment programs in the Northwest Territories. ... In the strategy for recruitment and training we have identified the potential labour recruitment pool, and we have recommended certain procedures for recruitment and training, as well as recommended training programs. ... (Au)

Q-95761
Employment impact of Arctic Gas Pipeline in northern Canada / Gemini North Ltd. Canadian Arctic Gas Study Limited [Sponsor].
Yellowknife : s.n., 1973.
105 leaves ; tables ; 28 cm.
ACU

The purpose of this study as part of the broader socio-economic impact study is to evolve estimates of the employment impact of a natural gas pipeline in northern Canada. ... Direct gas pipeline jobs in northern Canada are estimated in chapter Two. Chapter Three estimates jobs indirectly associated with gas pipeline development. Chapter Four establishes potential northern participation in direct and indirect gas pipeline employment from estimates of available northern labour supply. ... (Au)

Q-95877
The socio-economic impact of the Pointed Mountain gas field / Scott, M.
[Ottawa] : DIAND, 1973.
72 p. : figures, tables ; 28 cm.
Appendices.
References.
ACU

The results of the study of the socio-economic impact of production and transportation of gas from Pointed Mountain indicates that: 1) Local native men have worked on different construction phases. 2) Native workers adjusted rapidly to camp life and their work performance was satisfactory. 3) Most natives held labourer's jobs, and exposure to acquire experience for other positions was minimal. 4) "The right-of-first-refusal for short-term jobs is probably a better method to promote native employment than a quota system". 5) Short-term employment, for a few natives, has continued after the gas was on stream. 6) The men, employed in the twelve permanent jobs, are rotated to jobs in southern Canada on a weekly basis. (LET)

Q-95940
Mackenzie Valley Pipeline community impact study / Stanley Associates Engineering Ltd. Northwest Territories Association of Municipalities [Sponsor].
[Edmonton ?] : s.n., 1975.
116 p. : figures, tables ; 28 cm.
Cover title.
Appendices.
Bibliography: p. 110-116.
ACU

This report is the outcome of studies undertaken for the Northwest Territories Association of Municipalities (NWTAM) and is intended to provide to the Association and its member municipalities an indication of the magnitude and nature of impact that might be anticipated as a result of the construction and operation of the proposed Mackenzie Valley Gas Pipeline. The report is further intended to voice the concerns of the municipal councils relative to pipeline construction and operation. Finally, this report is intended to provide recommendations relating to those actions which might be considered in order to minimize the negative aspects, and maximize the positive aspects of anticipated municipal impact. [Labour and wages are among the social concerns] ... (Au)

Q-95958
Employment impact of Mackenzie Valley Gas Pipeline : preliminary draft report / Gemini North Ltd. Canadian Arctic Gas Study Limited [Sponsor].
Yellowknife : s.n., 1972.
51 p. : tables ; 28 cm.
Appendices.
ACU

This preliminary draft report uses the economic base approach to project a changing basic/service ratio. (LET)

Q-95990
The socio-economic effects of the proposed Mackenzie Delta gas development system : prepared evidence for the Mackenzie Valley Pipeline Inquiry / Socio-Economic Panel of Mackenzie Delta Producers Group. Sider, B.N. Tod, J.F. Wopnford, M.E. Gulf Oil Canada Limited [Sponsor]. Imperial Oil Limited [Sponsor]. Shell Canada Limited [Sponsor].
Inuvik : s.n., 1976.
8 p. ; 28 cm.
Cover title.
ACU

A short report discussing the Northern Training Program (NORTRAN), which provides on-the-job training to Northerners, and "opportunities for upgrading of education and for attendance at technical or apprenticeship courses". The demands on the community and the infrastructure during the short but intense construction period are also discussed. (LET)

Q-96342
Environmental impact statement for hydrocarbon development in the Beaufort Sea - Mackenzie Delta region. Volume 2 : Development systems / Dome Petroleum Limited. Esso Resources Canada Limited. Gulf Canada Resources Inc.
Calgary, Alta. : Dome Petroleum Limited, 1982.
1 v. (various pagings) : ill., figures, tables ; 28 cm.
Cover title: Hydrocarbon development in the Beaufort Sea - Mackenzie Delta region: Environmental impact statement. Volume 2: Development systems.
This volume was prepared with the assistance of Monenco Consultants Ltd.
References.
ACU, NFSMO

Development of the potentially huge oil and gas reserves in the Beaufort Sea-Mackenzie Delta Region will involve a coordinated pool of manpower, equipment, materials and support services. This will require considerable advance planning to ensure that all logistical, technological and environmental concerns associated with development in this Arctic region of Canada are addressed. Volume 2 ... identifies and quantifies the separate components, activities and potential environmental disturbances associated with development in this region. ... The essential elements of this volume are: an explanation of the need for energy and a summary of the development plan to produce oil and gas over the next twenty years; a description of the proposed production and transportation systems and the construction activities required for their development, including specific details of the individual components of these systems and the construction and design modifications required to make them functional in an Arctic setting; and the expected Canadian benefits to be derived from this project. (Au)

Q-96350
Environmental impact statement for hydrocarbon development in the Beaufort Sea - Mackenzie Delta region. Volume 4 : Biological & physical effects / Dome Petroleum Limited. Esso Resources Canada Limited. Gulf Canada Resources Inc.
Calgary, Alta. : Dome Petroleum Limited, 1982.
1 v. (various pagings) : ill., figures, tables ; 28 cm.
Cover title: Hydrocarbon development in the Beaufort Sea - Mackenzie Delta region: Environmental impact statement Volume 4: Biological & physical effects.
References.
ACU, NFSMO

The purpose of this volume is to assess the possible physical and biological impacts associated with proposed Beaufort Sea-Mackenzie Delta hydrocarbon developments .... Major emphasis is placed on examining the possible impacts of developing the first four offshore oil fields (assumed to be Tarsiut, Koakoak, Issungnak and Kopanoar) and two onshore oil fields (Adgo and Atkinson). ... To transport the oil from the region to markets, two modes of transportation, namely icebreaking tankers and overland pipelines, are under active consideration. Since both have merit, and eventually both may actually be employed, the possible impacts of each are examined. As suggested in the Environmental Assessment and Review Panel (EARP) guidelines, this volume discusses the potential impacts by region ...: the Offshore Beaufort Sea Production Region (Chapter 2), the Onshore Mackenzie Delta Production Region (Chapter 3), the Northwest Passage Transportation Region (Chapter 4) and the Mackenzie Valley Overland Pipeline Region (Chapter 5). ... (Au)

Q-96369
Environmental impact statement for hydrocarbon development in the Beaufort Sea - Mackenzie Delta region. Volume 7 : Research and monitoring / Dome Petroleum Limited. Esso Resources Canada Limited. Gulf Canada Resources Inc.
Calgary, Alta. : Dome Petroleum Limited, 1982.
1 v. (various pagings) : ill., figures, tables ; 28 cm.
Cover title: Hydrocarbon development in the Beaufort Sea - Mackenzie Delta region: Environmental impact statement. Volume 7: Research and monitoring.
References.
ACU

The main purpose of this volume of the Environmental Impact Statement is to bring together and present in summary form, the activities (both environmental and socio-economic) being conducted or envisaged to satisfy the research and monitoring needs identified in Volumes 2, 3, 4, 5 and 6. [The geographical regions addressed in this volume are primarily] the Beaufort Sea - Mackenzie Delta region, the Northwest Passage, and the Mackenzie Valley - the regions potentially involved in Arctic hydrocarbon development. ... Chapter 1 addresses topics related to the division of responsibility for conducting studies; the relevance of studies to development needs and to the assessment of development effects; and the means for reviewing and modifying current and future studies in a manner satisfactory to both industry and regulatory authorities. ... Chapter 2 ... describes the major relevant programs carried out over the past approximately 25 years in the Canadian Arctic. ... Chapter 3 begins by outlining the types of existing environmental operating conditions (EOCs) placed on the various facilities and operations in the Beaufort Sea region by government. Many of these EOC's include research and monitoring programs. This discussion is followed by descriptions of present and future environmental projects being undertaken or proposed by the proponents in conjunction with associated companies, government agencies or other groups. These include physical, biological, spill clean-up and socio-economic programs. Chapter 4 consolidates, by field of study, the proposed future programs as envisaged by the proponents at this time. ... (Au)

Q-96377
Environmental impact statement study of production structures : Beaufort Sea oilfield development / Swan Wooster Engineering Company Limited.
EBA Engineering Consultants Limited.
Josephson, D.S. Peter S. Hatfield Ltd.
Wennink, C.J. Dome Petroleum Limited
[Sponsor]. Esso Resources Canada Limited
[Sponsor]. Gulf Canada Resources Inc.
[Sponsor].
[Calgary] : Swan Wooster Engineering Co. Ltd., 1982.
1 v. (various pagings) : figures (some folded), tables ; 30 cm.
(Beaufort E.I.S. support document, no. BEISSD35)
Appendices.
Bibliography: appendix B.
ACU, NFSMO

... This EIS will address production and shipment aspects, particularly related to oilfield development, as well as matters more commonly referred to as "environmental", and will be based on input provided from various consultancy organizations as well as from the Participants themselves. ... Swan Wooster Engineering Co. Ltd. was invited to provide technical back-up to the Participants in matters relating to the conceptual design of support structures for production, storage and marine terminal facilities. ... The intention [of this study] has not been to undertake detailed designs but to develop the concepts in sufficient detail to be reasonably confident of their construction and operational feasibility and to be able to assess the likely problems associated with each. This has required basic analysis of structural, geotechnical and slope protection aspects using relatively standard and known techniques. It will be seen that the feasibility and economics of most of the schemes are largely a function of the ice and wave loading, which are themselves a function of structure type and location, and the degree of protection required for the various elements of the system. At this stage basic philosophical problems still exist on the definition of ice force magnitudes likely to be encountered, their return periods, and the protection or mitigating factors required for the different types of structure. Ice force criteria have been developed largely by the Participants with input from Swan Wooster, and it should be emphasized that any major change from the ice load philosophy put forward in this study could have a significant effect on the conclusions. Difficulties have also occurred in the development of the wave criteria. ... Potential solutions in these areas are addressed only in a very general manner, and will have to be the subject of a separate study.... (Au)

Q-102890
The behaviour of crude oil spilled on snow /
Mackay, D. Leinonen, P.J. Overall, J.C.K. Wood, B.R.
(Arctic, v. 28, no. 1, Mar. 1975, p. 9-20, figures, tables)
ACU

Q-103560
Oil in the Beaufort and Mediterranean seas /
Mackay, D.
(Arctic, v. 30, no. 2, June 1977, p. 93-100)
ACU

Q-105589
Environmental social program, Mackenzie Valley, northern Yukon pipelines June 1974 / Canada. DIAND.
[Ottawa : DIAND], 1974.
197 p.
Document not seen by ASTIS. Citation from NPB-V1.

This report is concerned with the people, the natural environment and resource use in the Mackenzie Valley and the Northern Yukon, and how these aspects might be affected if pipelines were built to move natural gas or oil to Southern markets. It includes a description of the present demographic aspects of the population: statistics on birth rate, death rate, rate of natural increase, sex distribution and trends in school enrolment, vocational training and labour force. The estimated labour supply and demand related to pipeline construction and operation is also examined. (NPB)

Q-105686
Application to the National Energy Board in the matter of the National Energy Board Act and in the matter of an application by Interprovincial Pipe Line (NW) Ltd. for a certificate under Part III of the Act and for an order under Part IV thereof in respect of an oil pipe line from Norman Wells, Northwest Territories to Zama, Alberta / Interprovincial Pipe Line (NW) Ltd.
[S.l.] : Interprovincial Pipe Line (NW) Ltd., 1980.
8 v. : figures, maps (some folded) ; 28 cm.
Contents: v. 1. Application and schedule A, information relating to application for a certificate under Part III of the Act. - v. 1a Schedule B, information relating to application for an order under Part IV of the Act. - v. 2. Pipeline route maps, engineering & construction drawings, construction plan maps. - v. 3. Applicant's environmental statement, consultant's environmental assessment, consultant's geotechnical assessment. - v. 4. Environmental maps, geotechnical maps, route alternatives, hunting, trapping and domestic fishing areas. - v. 5. Applicant's socio-economic policy statement, consultant's regional socio-economic impact assessment. - v. 6. Appendix 1, consultant's report on economic impact and net benefit to Canada. Appendix 2, Esso Resources Canada Limited statement of reserves and producibility [sic]. Appendix 3, consultant's report on reserves and producibility [sic]. Appendix 4, Norman Wells pipeline agreement. - v. 7. Supplementary information.
ACU

This is an application by Interprovincial Pipe Line (NW) Ltd. for authorization to construct an oil pipe line from Norman Wells, N.W.T. to Zama, Alberta. (ASTIS)

Q-106011
The Mackenzie Delta contingency plan / N.W.T. Dept. of Information.
[s.l.] : N.W.T. Dept. of Information, [197-].
1 v.
Document not seen by ASTIS. Citation from NPB-V1.
ACU

... The Mackenzie Delta Contingency Plan was based on the Canadian Arctic Gas Pipeline proposal; the larger of the two proposals to construct a natural gas pipeline system in the Mackenzie Valley. The purpose of this study is to outline changes in the level and type of public sector services which would be required as a result of the pipeline and other developments proposed for the Mackenzie Delta. ... (Au)

Q-106100
Regional impact of a northern gas pipeline /
Jordan, A.T.
Ottawa : DIAND, 1973.
7 v.
Volume 1 : summary.
Document not seen by ASTIS. Citation from NPB-V1.

Examines the economic impact of the proposed Mackenzie Valley gas pipeline on the people of the Northwest Territories. Reports in 7 volumes, contain logistical information and assess the impact of a pipeline on transportation facilities, resource development, territorial communities, traditional hunting and trapping activities and the population and labour force. ... (NPB)

Q-106828
Government of Yukon position on Beaufort development proposals : submission to Beaufort Sea Environmental Assessment Review Panel /
Y.T. .
Whitehorse, Yukon : Government of Yukon, 1982.
vii, 82 p. : ill. ; 28 cm.
(Beaufort E.I.S. government position statement)
Appendices.
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References.
ACU

... The Government of Yukon, in supporting Beaufort development activities, is committed to the preservation of Yukon's wildlife and environment. It is resolved to ensure that Yukoners obtain equitable business, employment and training opportunities so that resident Yukoners' participation in Beaufort work can contribute to the social and economic development of Yukon. The Government of Yukon, too, holds that its involvement in Beaufort development will be in a manner that will contribute to the political evolution of the territory, while preserving the ability of native peoples to engage in their traditional lifestyles. ... Following a brief overview of development proposals from Yukon's perspective, the paper outlines some contemporary and historic factors related to Yukon's involvement with the Beaufort. It sketches the mandate under which the Government of Yukon conducts its work on Beaufort development. It lists major socio-economic and environmental positions, describes Yukon's planning approach to Beaufort development, and it summarizes current and anticipated activities related to Beaufort hydrocarbon development plans. ... (Au)

Q-106836
Submission to the Beaufort Sea Environmental Assessment Panel on the Beaufort Sea hydrocarbon production and transportation proposal / N.W.T.
Yellowknife, N.W.T. : Government of the Northwest Territories, 1982.
154 p. ; 28 cm.
(Beaufort E.I.S. government position statement)
Appendices.
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References.
ACU

This section provides an overview of the structure and mandate of the Government of the Northwest Territories (GNWT). Departmental responsibilities related to the proposed . development are briefly described and policy statements of significance to Beaufort Sea development are reviewed. (Au)

Q-106844
Statement to the Beaufort Environmental Assessment Panel from the Department of Indian Affairs and Northern Development / Canada. DIAND.
Ottawa : Indian and Northern Affairs Canada, 1982.
iii, 87 p. : ill. (1 folded) ; 28 cm.
(Beaufort E.I.S. government position statement)
Appendices.
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ACU

... DIAND's Northern Affairs Program ... remains responsible for the policy and planning aspects of hydrocarbon development in the North. The Program and the territorial governments are now working together to set goals for northern development that will meet the objectives of the National Energy Program as well as the interests of northern people. Environmental protection and the interests and concerns of northern people in relation to hydrocarbon development are of primary importance to the Department. And the balance among the social, economic and environmental factors implicit in hydrocarbon production is being strongly emphasized. This paper provides an overview of DIAND responsibilities, programs and initiatives and the wide range of factors currently being considered with respect to the Beaufort Sea Proposal. (Au)

Q-106852
Beaufort Sea hydrocarbon production proposal : Department of Regional Industrial Expansion position paper / Canada. Canada. Office of Industrial and Trade Benefits. Canada. Dept. of Regional Economic Expansion.
Ottawa : Government of Canada, 1982.
1 v. (various pagings) : 28 cm.
(Beaufort E.I.S. government position statement)
Copy unbound.
Contents: Mandate and activities of the Office of Industrial and Regional Benefits: a brief prepared for a hearing of the Special Committee of the Senate on the Northern Pipeline, Ottawa, September 15, 1982 / Industry, Trade and Commerce and Regional Economic Expansion.
ACU

... This policy outlines the federal government's view of the industrial development objectives and guidelines which should be followed by major project sponsors in carrying out their projects in Canada. At the same time, the Minister announced the establishment of a Committee on Megaproject Industrial and Regional Benefits (C-MIRB) to act as a focal point for discussions with major project sponsors and the creation of the Office of Industrial and Regional Benefits (OIRB) to support and guide the activities of the Committee. A description of the origins of the government's industrial and regional benefits policy for major projects, the guidelines for major project sponsors, and the responsibilities of OIRB and C-MIRB is contained in the attached briefing for the Special Committee of the Senate on the Northern Pipeline. (Au)

Q-106860
Background paper submitted to the Beaufort Sea Environmental Assessment and Review Panel from the Department of Energy, Mines and Resources / Canada. EMR.
Ottawa : Energy, Mines and Resources Canada, 1982.
12 p. : tables ; 28 cm.
(Beaufort E.I.S. government position statement)
Appendix.
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ACU

... This document discusses the legislation and mandate that underlies the activities, policies and programs of EMR. The general nature of the activities in the energy sector are outlined, as are those of the earth sciences sector. These descriptions will provide the Panel with an understanding of the capability of the department to deal the economic as well as the scientific and technical aspects of the Beaufort Sea development. The Energy Research and Development Program is then presented, with particular emphasis on the Oil and Gas "task", especially the work that is relevant to environmental problems associated with frontier hydrocarbon development. This particular aspect of the energy R&D program is, in part, a reflection of the Federal government's response to the regulatory and scientific requirements of this industrial activity. A brief overview of major events since the NEP is then presented to indicate the general view on the changing nature of the energy scene. ... (Au)

Q-106879
Beaufort Sea hydrocarbon production proposal : Department of Communications position paper / Canada. Dept. of Communications.
Ottawa : Dept. of Communications, 1982.
10 leaves ; 28 cm.
(Beaufort E.I.S. government position statement)
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ACU

[There is concern that development will overburden existing or expanded communication systems degrading service to northern residents and cause increased costs to the public. It is therefore recommended that companies shall describe their plans to fulfill their communication needs no later than two years in advance of proposed requirement date for the telecommunications services.] The Department of Communications has been asked by the Panel to comment on two subjects: northern communications needs at present and in the future, especially if full scale oil and gas development proceeds; and the ability of the Federal Government to provide a communications infrastructure in a timely and effective manner. (Au)

Q-106887
The implications of the Beaufort Sea hydrocarbon production proposal to the Department of Fisheries and Oceans / Canada. Dept. of Fisheries and Oceans.
Ottawa : Dept. of Fisheries and Oceans, 1982.
1, 18 leaves : table ; 28 cm.
(Beaufort E.I.S. government position statement)
Appendix.
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The Beaufort Sea Environmental Assessment Panel has requested that the Department of Fisheries and Oceans ... provide it with a Position Statement on the Beaufort Sea Hydrocarbon Production Proposal. ... in response to the Panel's request, this Implications Paper outlines DFO's mandate and relevant legislation, its relevant past, present and future programs and activities, and summarizes the implications of Beaufort Sea hydrocarbon production to DFO and vice versa. (Au)

Q-106895
Environment Canada's proposed response to Beaufort Sea hydrocarbon production / Canada. Environment Canada.
Ottawa : Environment Canada, 1982.
1 v. (various pagings) ; 28 cm.
(Beaufort E.I.S. government position statement)
Appendices.
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ACU

The purpose of this paper is to provide the information requested by the Beaufort Sea Environmental Assessment Panel ... It is hoped that, in addition to meeting the information requirements of the Panel, this paper will contribute to a better understanding by other government agencies, industry, native organizations, citizens' groups, and the public of Environment Canada's concerns and proposed approaches to Beaufort Sea hydrocarbon development. A better understanding should set the stage for more dialogue and better rapport with those sharing our interest in preserving Canada's arctic environment. (Au)

Q-106909
C.E.I.C. position statement : impact of offshore oil development in the Beaufort Sea on the Canada Employment and Immigration Commission / Canada. Employment and Immigration Canada (Commission).
Ottawa : Employment and Immigration Canada, 1982.
47 p. ; 28 cm.
(Beaufort E.I.S. government position statement)
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The CEIC position paper on the Beaufort Sea Hydrocarbon Production Proposal will review the Commission's existing legislation, mandates and responsibilities and describe some of the programs and services of the Commission as they relate to hydrocarbon development in the North. To the extent possible, the effects of the Beaufort Sea oil and gas production in the Commission's current and planned programs, policies and activities will be catalogued, and vice versa. Finally, attached as appendices 1, 2 and 3, is information concerning the new National Training Act, which will be the cornerstone of the federal government's future involvement in the Canadian labour market. (Au)

Q-106917
Department of External Affairs : position statement on the Beaufort Sea oil and gas proposal / Canada. Dept. of External Affairs.
Ottawa : Dept. of External Affairs, 1982.
3 leaves ; 28 cm.
(Beaufort E.I.S. government position statement)
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The Department of External Affairs is the Canadian government agency responsible for the conduct of Canada's relations with foreign countries in the field of foreign policy and trade. ... The Beaufort Sea proposal contains elements which involve the responsibilities of the Department of External Affairs vis-a-vis Canada's two northern neighbours, the U.S.A. and Denmark. Canadian activities associated with oil and gas developments in the area could have an impact on the territory and inhabitants of Alaska and Greenland, necessitating that these activities be brought to their attention and that their legitimate interests be taken into account in Canadian consideration of this proposal. (Au)

Q-106925
Position paper of the Department of National Health & Welfare on Beaufort Sea hydrocarbon production proposal / Canada. Health and Welfare Canada.
Ottawa : Health and Welfare Canada, 1982.
vii, 30 p. ; 28 cm.
(Beaufort E.I.S. government position statement)
Appendices.
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... The principal concerns of ... the Department of National Health and Welfare ...

arising from the proposal relate to socio-economic and psycho-social impacts, with risks to existing social and family structure. Mental health problems, alcohol abuse, sexually transmitted diseases and family breakdown have all been previously recognized as adverse effects of an economic boom. The northern social fabric, for a number of reasons, is relatively fragile in any case, and potential adverse effects will be greater there than in a more mature, stable society. This paper was researched and prepared by officials of this Department who are sensitive to the special problems of the north and represents our best forecast of the consequences. We have also tried to anticipate the special and extra demands that will be placed on this Department to respond to the health and welfare needs that would arise. ... (Au)

Q-106933
Beaufort Sea project position statement on heritage matters : prehistoric and protohistoric archaeology / Canada. National Museum of Man.
Ottawa : National Museum of Man, 1982.
4 leaves ; 28 cm.
(Beaufort E.I.S. government position statement)
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ACU

The National Museum of Man is the sole federal agency responsible for prehistoric archaeology in areas of federal jurisdiction (with the exception of National Parks). Furthermore, archaeology in the Yukon and Northwest Territories falls under federal jurisdiction. This, and the National Museum of Man's own mandate have led it to be involved in a number of research projects dealing with segments of the area under consideration, including many major excavation projects since 1914. ... (Au)

Q-106941
Position statement on the Beaufort Sea hydrocarbon production proposal : Northern Canada Power Commission / Northern Canada Power Commission.
Edmonton, Alta. : Northern Canada Power Commission, 1982.
[8] leaves ; 28 cm.
(Beaufort E.I.S. government position statement)
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ACU

The Northern Canada Power Commission is essentially an electric utility operating on a commercial basis and has no authority in the area of environmental regulations. The position paper reflects this relationship to the proposed Beaufort Sea activities and discusses two primary areas of concern: 1) the effect on demand for electricity either for production or to serve the community and, 2) the availability of fuel supply for the Commission's operations. (ASTIS)

Q-106950
Beaufort Sea hydrocarbon production proposal : impact statement Public Works Canada / Canada. Public Works Canada.
Ottawa : Public Works Canada, 1982.
19 p. ; 28 cm.
(Beaufort E.I.S. government position statement)
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... Public Works is a common service agency which responds to requests from other departments and agencies. Thus any plans or new initiatives resulting from Beaufort Sea development will depend upon the activities of other departments and of the proponents. ... The impact of Beaufort Sea development on Public Works activities will consist mainly of an increase in the demands made for accommodation, marine and transportation services from other government departments and agencies in support of their activities. This will mean that PWC could receive requests for upgrading and extension of northern highways, for dredging and marine facilities, for northern housing and for Government of Canada buildings as well as for design, construction, technology and research services related to the above. (Au)

Q-106968
R.C.M.P. position paper : impact of offshore oil development in Beaufort Sea on law enforcement in the Northwest Territories (N.W.T.) / Royal Canadian Mounted Police.
Ottawa : Royal Canadian Mounted Police, 1982.
11, 20 leaves ; 28 cm.
(Beaufort E.I.S. government position statement)
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ACU

The production and transportation of Beaufort Sea oil and gas to southern markets can be expected to have an impact on police services that are provided by the R.C.M.P. in the N.W.T. As indicated in the Summary portion of Part V of this paper, the impact the development will have on the R.C.M.P. will depend on future decisions that are taken. Once these decisions are made, then the Force will be in a better position to identify impacts on programs, policy and enforcement responsibilities, as well as establishing overall resource needs to adequately meet demands for police services. ... [Some of the aspects which need to be considered are: rate of development, product transportation routes, sites, accommodation, recreation, hiring policies, company security posture, crime increase, native policing, and crime prevention]. (Au)

Q-106976
The Beaufort Sea - Mackenzie Delta hydrocarbon development proposal and the Canadian Air Transportation Administration / Canadian Air Transportation Administration.
Ottawa : Transport Canada, 1982.
20 p. : table ; 28 cm.
(Beaufort E.I.S. government position statement)
Appendix.
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ACU

... The purpose of this paper is to discuss the effect that the Beaufort Sea Proposal will have on the Western Arctic air transportation system over the next twenty years, and to identify possible implications for the Canadian Air Transportation Administration. (Au)

Q-106984
Canadian Marine Transportation Administration position statement to the Beaufort Sea Environmental Assessment Panel / Canada. Transport Canada. Marine.
Ottawa : Transport Canada, 1982.
35 p. : figure, table ; 28 cm.
(Beaufort E.I.S. government position statement)
Cover title: Department of Transport, Canadian Marine Transportation Administration position to the Beaufort Sea Environmental Assessment Panel.
Appendix.
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ACU

... The Department of Transport is responsible for the development and operation of a safe and efficient national transportation system that contributes to the achievement of government objectives. The department has provided marine services to all parts of Canada, including the Arctic, for many years. However, until now, Arctic activities have been limited to the summer season when weather and ice conditions have permitted navigation by vessels of modest icebreaking, capability. Industry's plans for year-round operations will now require that the department increase its Arctic capability by a quantum step. It is intended that suitable Arctic marine services and regulations will be put in place when and where required in anticipation of this demand, Transport is taking policy and program initiatives. This submission outlines the existing mandates and responsibilities of the department, describes the policies and programs for Arctic transportation development and responds to several specific concerns identified by the panel. (Au)

Q-107050
An analysis of the concerns for the Porcupine caribou herd in regard to an elevated pipeline on the Yukon coastal plain / Renewable Resources Consulting Services Ltd. Thompson, D.C. McCourt, K.H. Jakimchuk, R.D. Dome Petroleum Limited [Sponsor].
[S.l. : Renewable Rescources Consulting Services Ltd.], 1978.
3 microfiches : figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWB07)
References.
ACU

Dome petroleum Ltd. has requested Renewable Resources Consulting Services Ltd. to prepare an analysis of the environmental concerns for the Porcupine caribou herd with respect to the construction and operation of an elevated pipeline on the Yukon coastal plain. The approach ... taken consists of three main phases: a review of the timing and intensity of use of the coastal plain by caribou; an assessment of the potential impact of an elevated pipeline on the Porcupine herd including a review of the concerns expressed by participants in public hearings related to the Arctic Gas pipeline application; and suggestions for terms and conditions which should be applied to the construction and operation of such a pipeline in order to maintain impact within an acceptable level. ... (Au)

Q-107069
Dome oil spill contingency plan, book 1 and 2 / Dome Petroleum Limited.
[Calgary, Alta. : Dome Petroleum Ltd.], 1981.
9 microfiches : figures ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWC01, RWC02)
Appendices: Book 2 - Equipment list (RWC02).
ACU

This contingency plan will serve as Dome's plan of action for any oil spill. It is the third edition of the plan and will be updated as new equipment and techniques become available. This plan delineates techniques that would be used to deal with the various oil spills which might be encountered in the Beaufort Sea and is based on past experience and knowledge. The choice of the most appropriate action in any oilspill will be influenced by the ice and weather conditions, type and quantity of oil spilled and, if predictable, the fate and consequences of the oil spill. ... Information to aid and clarify this plan is included in the appendices, Book 2 of Dome oil spill contingency plan. [which] should be used in conjunction with Book 1. Book 2 is basically split into two sections: Appendix 1-3 contact lists, phone numbers and procedures to follow. Appendix 4-16 equipment and techniques available for Oil Spill countermeasures. ... (Au)

Q-107107
The impact of gravel dredging on benthic fauna near Herschel Island, Yukon Territory, 1981 / Arctic Laboratories Limited. Heath, W.A. Thomas, D.J. Koleba, J.M. Perry, B.M. Ethier, A.G. Maclauchlan, L. Dome Petroleum Limited [Sponsor].
Calgary, Alta. : Dome Petroleum Limited, 1982.
3 microfiches : figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWE04)
References.
ACU

In Mackenzie Bay, ... sampling of the benthos was performed by diving biologists in July and September 1981, before and after gravel dredging, respectively. ... In September, following dredging, there was no obvious increase at control stations in sedimentation which might be related to suspension of fine sediments by dredging. The distribution and types of macrobenthos observed were similar to those found in July. An edited version of the video recordings is presented as a separate report. ... The faunal composition of benthic samples was generally highly diverse. However, the diversity of benthos was reduced in dredge trenches. A total of at least 158 species was identified in the July samples. The identifications were only completed to the family level for all September samples and for some taxa in certain July samples, the biomass of the benthos was generally low compared to other studies nearshore areas of the Beaufort Sea. The data on faunal composition were analysed for community associations and habitat preferences by the Zurich-Montpellier (Z-M) method. Stations were clustered according to faunal composition into muddy, sandy, intermediate, gravelly and dredged groups. The station clustering corresponded well with the sedimentary characteristics of the sampling sites. ... Many of the organisms represented are apparently well adapted to the heterogeneous sedimentary conditions of the gravel bars in Mackenzie Bay. Based upon the degree of recovery noted in September and on the conditions favouring resettlement, it was considered that the recolonization of dredged areas by the benthic fauna would likely be relatively complete in about two years. From the 1981 level of dredging activity, the impact on the benthos was found to be localized to the dredge trenches. Furthermore, the total disturbance from dredging was spread over a large area on the gravel bars, due to the diffuse patterns of dredging. (Au)

Q-107115
A baseline chemical survey at Kilannak A 77, July 1979 / Arctic Laboratories Limited. Thomas, D.J. Canadian Marine Drilling Limited [Sponsor].
Inuvik, N.W.T. : Arctic Laboratories Ltd., 1979.
1 microfiche : tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWE05)
Appendices.
References.
ACU

Kilannak A 77 was sampled in a continuation of the Site Survey Programme in July 1979. Before-dredging baseline values for copper, zinc, cadmium, lead, nickel, chromium, mercury and iron in sediment, sea water and Macoma calcarea were within the range of values found at all previous site survey locations and characteristic of an uncontaminated coastal area. Zoobenthos species diversity (78) was the highest found to date and zoobenthos biomass (23.60 g/square m) was in the mid range of previous site survey data. Both diversity and biomass were consistent with Wascasey's (1975) distributionn. Total organic carbon in sediment ranged from 1.04 to 1.21%. (Au)

Q-107182
Tingmiark K-91 and Kopanoar D-14 : a chemical study one year after the occurrence of water flow, July 1978 / Seakem Oceanography Ltd.
Thomas, D.J. Canadian Marine Drilling Limited [Sponsor].
Sidney, B.C. : Seakem Oceanography Ltd., 1978.
3 microfiches : figures, tables ; 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWE07)
Appendices.
References.
ACU

Tingmiark K-91 - A mainly chemical sampling programme was conducted in July 1978 to obtain data for a continuing assessment of the glory hole area since the occurrence of water flow in 1977. CTD measurements indicated that heat and water continue to subside. No critical oxygen deficiency was measured and pH profiles were within normal ranges. The distributions of trace elements (Cu, Zn, Cr, Ni, Pb, Cd, Hg, Ba and Fe) indicated the presence of concentrations above the baseline values established in 1977. Highest concentrations occurred near the wellhead and decreased steadily in all directions away from it. The anomalies were localized to about a 100-m radius of the wellhead. Station 8 NE which was farthest from the glory hole had the characteristics of a true background station. In general, however, the concentration levels of metal pollutants around the glory hole can be considered within tolerable limits by the environment (relative to commonly used decision-making standards of toxicity). ... Zoobenthos distribution showed increased abundance and diversity with increasing distance from the wellhead and there was indication of recolonization of sediment in the glory hole. Trace element concentrations in the zoobenthos were similar to 1977 baseline values. CTD, sediment and seawater samples indicated that Kopanoar D-14 has the characteristics of a baseline station. (Au)

Q-107190
The oil sinking ability of Mackenzie River borne suspended sediments in the Beaufort Sea : a literature review / F.F. Slaney & Company.
Canadian Marine Drilling Limited [Sponsor].
Vancouver, B.C. : F.F. Slaney and Company Limited, 1978.
2 microfiches : figures, tables : 11 x 15 cm.
(Beaufort E.I.S. reference work, no. RWE08)
ACU

... The primary objective of this study was to establish if there is sufficient evidence to suggest that suspended sediments carried by the Mackenzie River and discharged in the form of a plume in the Beaufort Sea could contribute to the dispersal of an oil slick originating from an oil well blowout. Specific questions relating to temporal and spatial differences in Mackenzie River sediment discharge and oil sinking potentials were posed by Canadian Marine Drilling Ltd., Calgary, Alberta, and are addressed in subsequent sections of this report. Two other study objectives were to 1). attempt to establish a formula relationship between the volume of suspended sediments and their ability to sink oil, and 2). if probable oil sinking effects were expected, to provide recommendations for future laboratory and field studies that would substantiate the oil sinking hypothesis and supplement the results of the present literature review in relation to a Beaufort Sea oil well blowout. Implicit to both examination of oil-sediment interactions and derivation of a formula relationship was an examination of a number of factors such as sediment type, particle size, temperature and salinity which could conceivably affect oil sedimentation rates in the Beaufort Sea. (Au)

Q-107808
Microbial degradation of Canmar oils by northern marine microorganisms / Westlake, D.W.S.
Cook, F.D.
[S.l. : s.n. : 1980?].
1 microfiche : figures, tables : 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWB18)
References.
ACU

... The object of this study was to obtain information on the presence of and factors affecting the activity of oil-degrading microorganisms in inter-tidal sediment and beach samples from the Tuktoyaktuk area of the Northwest Territories in the vicinity of the Canmar camp. Microbial activity will be reported in terms of changes in the saturate fraction of Canmar oil brought about by microbial activity .... The effect of the amount of nitrogen and phosphorus added to representative sediment samples on the rate of change of the chemical composition of a Canmar oil will also be investigated. (Au)

Q-107883
Norman Wells oil spill response / Esso Resources Canada Limited.
[S.l.] : Esso Resources Canada Limited, 1981.
4 microfiches : figures, maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC03)
Appendix.
ACU

The manual is intended as a handbook for use to respond to an oil spill emergency. It is assumed that readers of this document are familiar with oil spill control procedures, in general, and only need specific details in order to conduct a clean-up response. It is recommended that the whole manual be read before a spill occurs. The first part of this handbook ... deals with the company policy with regards to oil spills .... The second part ... describes the basic oil spill response organization, details oil spill reporting procedures, and contains environmental maps. ... The third part ... contains an outline of specific details involved in an operational oil spill situation. The general approach is given in the section Countermeasures and Strategies, and serves as a basis for discussions on Equipment and Action plans. The Action plan is the heart of the handbook. ... (Au)

Q-107891
Chemicals for oil spill control / Exxon Corporation.
[S.l.] : Exxon Corporation, 1980.
6 microfiches : figures, tables : 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC04)
ACU

The purpose of this information package ... is to familiarize industry, governmental and academic groups with the importance of oil spill chemicals in contingency planning and in the actual treatment of oil spills. ... This package is aimed for an audience of engineers, scientists and other individuals who are responsible for developing oil spill contingency plans and managing or dealing with oil spill situations. The major areas to be covered are: (1) what oil spill chemicals are, how they work, (2) the toxicity and effectiveness of the chemicals, especially dispersants, (3) how chemicals are best applied, and (4) the economics and logistics of using chemical dispersant products. ... the roles of oil spill collecting agents, shoreline protection chemicals, post-spill cleanup compounds are included. The package consists of 2 parts, an executive summary and a detailed technical discussion. Key published reports relating to the oil spill chemical topics discussed in the package are attached to the end of the information package. (Au)

Q-107905
Aerial application of chemical dispersants - field demonstrations / Exxon Research and Engineering Company.
[S.l. : s.n., 1980?].
3 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC05)
Appendices.
Several unpublished field reports by Exxon Research and Engineering Company and Pacific Environmental Laboratory accompany the main report entitled Overland Aerial Application Tests of Oil Spill Dispersants held at Abbotsford, B.C., March 13-14, 1979 written by R.W. Dennis and B.L. Steelman of Exxon Research and Engineering Company.
ACU

... The [main] report describes the results of a field test designed to evaluate the aerial application of a low toxicity, concentrated chemical dispersant. The specific goals of this test were to: (1) examine the feasibility of applying chemical dispersants from a large aircraft, (2) evaluate the dispersant delivery system, and (3) test the relative effectiveness of the chemical on different crude oils in waters having different salinity levels. ... The results of this field test demonstrate that aerial application of oil spill dispersants from large aircraft is a feasible and effective delivery method. [Subsequent to this over land field test, in September and October, 1979, offshore oil spill tests were conducted in the U.S. The results of these offshore oil spill tests further demonstrate the capability of aircraft to effectively apply dispersants. Pacific Environmental Laboratory tested nine oil dispersant products, test results and a summary of the analytical procedure are also included.] (Au)

Q-107913
Computer-based training for oil spill on-scene commanders / Control Data Canada, Ltd.
[S.l.] : Control Data Canada, Ltd., 1981.
2 microfiches : figures ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC06)
Appendices.
References.
ACU

The Computer-based Training Product resulting from the interaction of Subject Matter Experts, Instructional Designers and Developers would be a life-like simulation of water-based oil spills. The trainee would interact with a computer-driven simulation through a graphics terminal. A map-like graphic would illustrate the position and movement of the oil slick as it interacts with such forces as wind, current and its own composition characteristics (evaporation rate, viscosity, etc.). The trainee would choose containment and clean-up options as he attempts to implement and revise his strategies. Time compression would be used to provide a trainer with an experience equal to several days of on-scene activity in a matter of hours. ... The instructional goal can be stated as follows: To provide on-going opportunities for On-scene Commanders and Response Team Members to practice their problem solving skills related to oil spill response. (Au)

Q-107921
Dyes and coloured objects : an evaluation of their use in deterring birds from entering oil-infested leads and polynyas in the Beaufort Sea / LGL Limited, Environmental Research Associates. Salter, R.E. Canadian Marine Drilling Limited [Sponsor].
Edmonton, Alta. : LGL Limited, 1979.
1 microfiche : table ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC07)
Appendices.
References.
ACU

... Limited experimental evidence suggests that waterfowl will avoid dyed areas under some circumstances; orange and possibly red appear to be the most promising deterrent colours. In order to fully assess the usefulness of dyes as a deterrent in the Beaufort Sea area information is required on species-specific responses of the most common bird species ... to various colours, and on the effects of habituation, availability of alternate habitat, motivation to land and social facilitation on these responses. Much of this information could be obtained in a laboratory setting, but field testing would eventually be required. Several oil-soluble dyes are commercially available, but data on solubility, required concentrations, rates of weathering and fading, and toxicity under various environmental conditions would be needed to evaluate their usefulness. Because experimental evaluation of the use of coloured objects as deterrents would be more complicated than the evaluation of dyes, ... and because application ... to oil spill areas also poses a number of technical feasibility problems, further consideration of this method is not recommended. (Au)

Q-107930
COST - Canmar oilspill tracking model users documentation / Flater, W.A.
[S.l. : s.n., 1978].
2 microfiches : figures, table ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC08)
Appendices.
References.
ACU

The object of this programme is two fold; firstly to track and predict the motion of a hypothetical oil spill and secondly to determine the concentration of oil after a certain amount of time. ... The objective of the project was to incorporate the programme in the Arctic Weather Center ... to allow for both tracking (up-dating) the oil trajectory every hour using the observed wind data and predicting the future trajectory (every six hours) using the predicted wind data. AWC are working directly with Canmar to provide up-to-date information on weather conditions during Canmar's drilling operations in the Beaufort Sea using a computer; the oil spill programme runs on this computer. ... It is hoped to verify the programme using Orion oil tracking buoys. If this is carried out, it is recommended that a record of the wind data for grid points covering the Beaufort Sea (obtained from AWC computer), along with the buoys positions are retained. Using these data, a programme could then be written which would allow optimization of the model which indicates the movement of oil in the Beaufort Sea. The model considered in this programme determines oil motion from wind effects only and does not include permanent currents. ... (Au)

Q-107948
Dome Petroleum experimental oil spill at McKinley Bay, N.W.T. : examination of ice biota / McGill University. Marine Sciences Centre. Acreman, J. Arctic Laboratories Limited. Borstad, G. Humphrey, B. Dome Petroleum Limited [Sponsor].
[S.l. : s.n., 1980?].
1 microfiche : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC09)
ACU

... Apollonia (1965) stressed the importance of ice algae as a potential food source for grazing invertebrates such as amphipods ... which are in turn important food sources for polar cod. ... In view of this grazing activity at the bottom of the ice, the early ice algal production could be very significant. Clasby et al. (1976) calculated the annual carbon input by ice algae off Pt. Barrow was about 5 gC/square m which would amount to a very significant fraction of the total primary production for Arctic waters, estimated by various authors .... The fact that oil floats will mean that it will accumulate in pools under the ice. ... There are several possible effects of oil accumulated at the under-ice surface. A physical coating would lead to isolation of the algae from their nutrient and light source and also from the grazers .... More important is probably the effect that the more volatile components of the oil will have on the organisms present. ... In the Arctic, Alexander et al. (1972) found that primary production was significantly depressed and seasonal succession of algal species was reduced in an oil-polluted small pond in Alaska. ... Hsiao (1976). ... predicted a large spill would result in a change of species composition of the phytoplankton community from diatoms to flagellates because of this differential sensitivity. ... With this background, we wanted to take advantage of the opportunity to collect some preliminary information on this subject in the Beaufort Sea in an area subjected to two experimental oil spills. (Au)

Q-107956
Study of cold weather performance of pumping systems / Arctec Canada Limited. Tam, G. Hebert, M. Dome Petroleum Limited [Sponsor].
Kanata, Ont. : Arctec Canada Ltd., 1982.
7 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC10V1, RWC10V2)
Appendices: volume 2.
References.
ACU

... The objectives of this study were to: Estimate the limiting factors for pumping oil/water mixtures in the Arctic. Develop guidelines for the use of appropriate equipment and recommended operational techniques to prevent freeze-ups. Develop test parameters to conduct a full-scale field exarcise. This report summarizes the market survey of the availability of hoses, pumps, and insulating and heat tracing techniques and details the heat transfer analysis for the hose system and experimental program for the pumping systems in the cold room for Arctic operations. This study investigated two distinct pumping systems, namely the "bare" and "insulated" systems. The former system implies neither the pump nor the hose is insulated or heat traced, while the latter is a general term for the pumping systems with insulation and/or heat tracing. (Au)

Q-107964
The use of aerially-deployed igniters for an oil blowout in the southern Beaufort Sea / Ross (S.L.) Environmental Research Limited. Dome Petroleum Limited [Sponsor].
[S.l.] : S.L. Ross Environmental Research Ltd., 1981.
2 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC11)
Appendices.
References.

Estimates have been made concerning the amount of oil, originating from a subsea blowout in the Beaufort Sea, which could be removed from the ice surface in the spring through an extensive igniter deployment operation via helicopters. ... The investigation firstly analysed the burning of all surface oil pools of area one metre square or greater, which would result in an ignition of approximately 95 percent of the surfaced oil, or 70 percent of the released oil. It was found that this would require the use of millions of igniters and dozens of helicopters for most of the blowout conditions under study. An operation of this magnitude was deemed unfeasible. ... Possible ways of enhancing the igniter operation's efficiency are discussed. The most promising method would be to induce an earlier formation of the oil on the surface. This would provide more time for the deployment of igniters and supply a higher percentage of the oil spilled on the surface for burning. ... In summary, the general effectiveness of igniters in removing oil from ice has been estimated. The decision to deploy igniters must now be based on a careful analysis of the costs involved and the benefits gained through such an operation. (Au)

Q-107972
Air deployable oil spill igniter tests - Yellowknife, May 14, 1979 / Dickins, D.F. Canadian Marine Drilling Limited [Sponsor].
[S.l. : s.n., 1979?].
2 microfiches : ill. ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC12)
Appendices.
References.
ACU

In a controlled test using 173 litres of Beaufort Sea crude oil, a series of prototype oil spill igniters were dropped from a helicopter, into an oiled pool on the ice surface of Crater Lake, near Yellowknife, N.W.T. Over 90% of the oil was successfully burned, but air deployment is not considered reliable using the igniters in their current form. Improvements are necessary to: - eleminate the possibility of the igniter landing inverted - enhance the success rate of hitting the target pool - minimize the herding effect of helicopter downwash - reduce the igniter bulk, and simplify the fuse lighting procedure. (Au)

Q-107980
Improvement of air-deployable, oil slick igniters / Energetex Engineering. Canadian Marine Drilling Limited [Sponsor].
Waterloo, Ont. : Energetex Engineering, 1980.
1 microfiche : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC13)
Appendix.
References.
ACU

Seven air-deployable igniters were constructed, tested and evaluated. The best design ... was then selected as the most suitable for air-deployment and subsequent ignition of the oil. The critical factors in its selection were the relatively low costs of construction and the superior performance of its design. When tested ... both of the objectives set out at the beginning of this project were fulfilled. The first objective was to reduce the size and weight of the igniter, and the second to improve its floatation and stability characteristics in water after air-deployment. All seven designs were tested for their floatation and stability ...; only two, Igniter #6 ... and Igniter #7 were tested in the static combustion test ...; and only the most suitable igniter (Igniter #6) was tested in the air-deployment test .... In the end, during the air-deployment test runs, the selected Igniter #6 was dropped from an 11.5 m high tower and its performance was evaluated. Using only fuse wire as a starter, four out of the five test runs ... were successful in achieving ignition.

(Au)

Q-108022
Oil and gas under ice laboratory study / Acres Consulting Services Limited. Canadian Marine Drilling Limited [Sponsor]. Canada. EPS [Sponsor].
Niagara Falls, Ont. : Acres Consulting Services Ltd., 1980.
1 microfiche : ill., figures, table ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC17)
ACU

A laboratory study of the behavior of oil and gas under ice has been conducted by Acres Consulting Services .... The prime objectives of the study were defined as follows. - To determine the influence of currents on oil herding within depressions and under broken sea ice. - To determine the influence of currents on oil migration between depressions and under broken sea ice. The tests were conducted in Acres' ice flume at the Niagara Falls laboratories. Two different ice covers were used with undulated and broken cover sections. This report contains a description of the test facilities, test procedures, and detailed observations. A number of photographs have been attached and a videotape recording ... has also been prepared. (Au)

Q-108030
Development and testing of a 'quickie' fire resistant oil containment boom / McAllister Engineering Ltd. Canadian Marine Drilling Limited [Sponsor].
Vancouver, B.C. : McAllister Engineering Ltd., 1979.
1 microfiche : figures ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWC18)
ACU

It has been found that one of the most acceptable forms of handling spilled oil appears to be in-situ burning. Before oil can be burned, it is necessary that it be collected to sufficient depth to burn. While current oil containment booms will collect oil, none have been built that are sufficiently fire resistant and yet sufficiently portable to allow for ready transport to a spill site. As a consequence, McAllister Engineering Ltd. was asked to construct a test section of boom utilizing readily available materials. The boom suggested ... was to be constructed of oil drums interconnected by a flexible skirt utilizing chain as a ballast/tension member. The material to be used for a flexible interconnection was to be investigated and selected for appropriateness to the operation. Such a boom was designed, built and tested. Subsequently, tests were made of the oil drum materials to determine their rate of oxidation and probable life expectancy when used as a floatation unit. (Au)

Q-108057
Production islands / Exxon Corporation. Jahns, H.O.
[U.S.] : Exxon Production Research Co., 1979.
1 microfiche : ill. ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWD01)
References.
Paper presented at the Technical Seminar on Alaskan Beaufort Sea Gravel Island Design, Anchorage, Alaska, 15 October, 1979, and Houston, Texas, 18 October, 1979.
ACU, NFSMO

In this paper Exxon Corporation describes the way in which it would design and build an exploration gravel island in a thirty foot water depth in the Alaskan Beaufort Sea. (ASTIS)

Q-108065
1981 McKinley Bay program description and environmental assessment / Dome Petroleum Limited.
[Calgary, Alta.] : Dome Petroleum Ltd., 1981.
1 microfiche : figures ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWD02)
References.
ACU

The purpose of this document is to outline Dome's 1981 plans for work at McKinley Bay in support of the continuing exploratory drilling program and specifically, to restate Dome's interests in the bay as a winter mooring basin for the Canmar fleet and as a forward supply base for late season drilling and early season breakout. What follows is the background documentation, project description, environmental assessment and relevant permit/approval requirements as we understand them. ... (Au)

Q-108103
Isserk artificial island environmental baseline and monitoring study 1977 / Envirocon Limited. Imperial Oil Limited [Sponsor].
Calgary, Alta. : Envirocon Ltd., 1977.
5 microfiches : ill., figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE17)
Appendices.
References.
ACU

... The construction activities associated with Isserk F-27 caused substantial turbidity both around and downstream of the island. However, a dyke built around the island perimeter substantially reduced the dredged material spilling into the adjacent waters. The phytoplankton population was either stimulated or entrained by the turbidity plume due probably to nutrient enrichment from the disturbance of underlying sediments. Neither the zooplankton nor benthos within the plume were significantly affected by the construction activities. However, an estimated 6000 kg. of benthos were either destroyed or displaced from habitat at the borrow site or under the island base. Still, the underwater surfaces of Isserk F-27 provide potential habitat for benthos colonization. In addition, the presence of new shoreline may attract other biological communities including fish. Any deleterious environmental effects that may have gone undetected were likely to have only a short-term impact since the construction schedule lasted only about three months. Furthermore, such impacts would be restricted to the immediate Isserk F-27 area. (Au)

Q-108120
Kaglulik A-75 : a chemical study during shallow water flow, July 1978 / Seakem Oceanography Ltd. Thomas, D.J. Canadian Marine Drilling Limited [Sponsor].
Sidney, B.C. : Seakem Oceanography Ltd., 1978.
1 microfiche : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE20)
Appendices.
References.
ACU

Water and sediment sampling was carried out at Kuglulik A-75 during shallow water flow. No temperature or conductivity anomalies could be detected. Dissolved oxygen concentrations indicated no critical oxygen deficiency and pH profiles were within normal range. Values for dissolved Fe, Cu, Zn, Cr, Cd, Ni, Pb, and Hg indicated concentrations at least several times above the baseline established by the 1977 Site Survey. The source of the trace metals was the flow water itself and not likely the sediments which contained very low concentrations of all elements. (Au)

Q-108227
Volume 1 : final report on zone of influence of other offshore activities / F.G. Bercha and Associates Limited. Canadian Marine Drilling Limited [Sponsor].
Calgary, Alta. : F.G. Bercha and Associates Ltd., 1979.
5 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWE33)
Appendices.
References.
ACU

An investigation directed at the development and application of methodology for indentification, quantification, and assessment of environmental impactors associated with the construction and operation of Dome's Beaufort Sea hydrocarbon production and transportation system was carried out. The primary quantification methodology developed and utilized was a computerized environmental matrix method capable of objectively identifying and quantifying first order impactors; that is, discharges, disturbances, and other direct effects of the system on the physical environment. ... the system was decomposed into approximately 400 potentially impacting activities, each associated with any of up to 100 impactors. Examples of activities include: dredging, ice breaking operations, drilling, and habitation; of impactors, sediment dispersion, ice breaking, exhaust emission, and sewage discharge. ... Further detailed investigations were carried out on higher order impactors, including permafrost, sea bottom reconfiguration, and drilling discharges. On a more vigorous level, the beginnings of an investigation into the effects of channel and ice free area maintenance and atmospheric dispersion were established. Quantitative and qualitative significant issues were identified and discussed for all aspects of the work. Conclusions and recommendations were submitted. (Au)

Q-108383
Developing a safe arctic oil tanker / Dome Petroleum Limited.
Calgary, Alta. : Dome Petroleum Ltd , 1981.
1 microfiche : figures, maps, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWT01)
Appendix.
References.
ACU, NFSMO

This report describes the distinctive features of a new concept for the transportation of crude oil from arctic regions via oil tanker. The ship which Dome has designed is a double-hulled, twin screw very large crude carrier of all-welded construction, consisting of forecastle and forward accomodation deckhouse, midbody oil cargo, segregated ballast tanks and with all machinery mounted aft. A conceptual drawing is provided along with a list of distinctive design features. Appendix I consists of the recommendations made by Det Norske Veritas to Dome Petroleum for arctic tanker design. These recommendations are separated into three catagories: operational procedures, installation of equipment, and construction features, and highlight the differences between conventional tanker design and operation and the proposed arctic tanker. (ASTIS)

Q-108405
Methods of determining pipeline trench depths in the Canadian Beaufort Sea / Dome Petroleum Limited. Pilkington, G.R. Canada Marine Engineering Ltd. Marcellus, R.W.
[S.l. : s.n.], 1981.
1 microfiche : figures ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWT03)
Paper presented to POAC 81: The International Conference on Port and Ocean Engineering under Arctic Conditions, 6th, Quebec, Canada, 27-31 July, 1981.
ACU, NFSMO

The problem of ice scouring on the sea floor in ice infested water is an important problem now that development schemes for these waters are seriously being considered. This paper describes the origin and subsequent disappearance of sea floor ice scores, then presents a discussion of the various methods that can be used to calculate the return period for ice scores and TOP (top of pipe) depth for sea bed installations; namely, TOP below the saturated score zone or deepest score, score dating, repetitive mapping, score equilibrium analysis, ice keel/score statistics, and TOP depth optimization method. Of the methods, the last two are felt to be most useful for the Beaufort Sea, and results indicating TOP at 5 m in 25 m water depths and no trenching in 55 m of water are presented. Many of the other methods are thought to be useful for comparative purposes only. ... The purpose of this work is to estimate the likelihood of disruption of a pipeline by an ice feature as a function of TOP depth, and thus rationally choose a TOP depth for the pipeline. Here we review all the methods known to the authors for determining TOP depth in the Beaufort Sea and present a new method of calculating TOP depth based on observed ice keel/ice score statistics. (Au)

Q-108421
King Point study, October 1979. A preliminary evaluation of the King Point region : year-round harbour and marine terminal potential / Dome Petroleum Limited.
[Calgary, Alta.] : Dome Petroleum Ltd., 1979.
1 microfiche : figures ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWT05)
ACU

The objective of this study is to describe the potential of King Point as a deep draft (17 m) harbour and a year round base of operations for Dome Petroleum's future activities in the Beaufort Sea. This study also addresses the use of the adjacent area as a marine terminal for oil and LNG. (Au)

Q-108430
Beaufort harbour study : preliminary review of potential harbour sites / Woods, C.B. Worbets, B.W.
[S.l. : s.n.], 1979.
2 microfiches : figures, maps ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWT06)
ACU

The objective of this report is to identify potential harbour sites along the Beaufort coast, and to evaluate the suitability of the sites for anticipated Dome/Canmar needs. The potential harbour sites identified include: - all known anchorages and harbours that have been used, or evaluated for use, over the last 20 years. - additional sites which have been identified herein as potential harbour sites. The choice of potential sites for consideration and the more detailed evaluation of sites was conducted on the basis of: - the anticipated functional requirements for harbour sites and related shore facilities. - physical/environmental characteristics of the sites. - biological, cultural and socio-economic considerations. In the medium term (81-84) exploration and development drilling will expand to include year-round operations. In the long term (1985 to 1995) production activities are expected to develop and will involve initial production from floating platforms as well as transportation by tankers and/or pipelines. Year-round drilling will also continue. The short, medium and long term development projections are discussed in more detail .... There are a number of physical, environmental, and socioeconomic criteria that must be considered in evaluating potential harbour sites. These are: [marine considerations, shore considerations, maps and profiles, environmental considerations, research requirements and present legal status of the land. The 20 sites analyzed were grouped on the basis of their locations along the Beaufort coast]. (Au)

Q-108472
Dome Petroleum Ltd. 1981 Beaufort Sea operations evaluation / Dome Petroleum Limited. Hammer, L.
[Calgary, Alta.] : Dome Petroleum Ltd., 1981.
3 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWZ02)
ACU

The Beaufort Sea operations evaluation is presented in four sections: 1. Drilling performance, 2. Offshore construction, 3. Environmental Affairs, research and development, and 4. Socio-economic considerations. 1981 investigations indicate that the discoveries at Kopanoar and Koakoak have the potential to be hydrocarbon accumulations with oil in place between 1.8 to 4.5 billion barrels in the Kopanoar structure and 2 to 5 billion barrels in the Koakoak structure. As a result Dome intends to conduct further appraisal drilling at both sites to further evaluate the potential of these discoveries. 1981 also saw construction of the world's first caisson retained island in arctic waters. The design and construction of the caisson retained island is described. During the past year Dome and Canmar's Environmental Group have conducted work in the areas of oil spill countermeasures, oil spill research and development, environmental monitoring and prediction, and biological - chemical research. The major accomplishments in these various areas are outlined. "Based on several years of accumulated northern experience, Dome Petroleum has been able to develop principles and implement strategies for local participation and benefits to provide visible advantages to local residents without adversely effecting social and environmental conditions. These policies and programs are described in an Action Plan entitled '1981 Social Economic, Cultural Agreement, Beaufort Sea Project'." Within the text is a summary of these programs in the areas of: northern employment and training, economic development, social and cultural programs, information and communications, and future development in the Beaufort Sea. (ASTIS)

Q-108480
The Special Committee of the Senate on the Northern Pipeline : a submission by Dome Petroleum Limited / Dome Petroleum Limited.
[Calgary, Alta.] : Dome Petroleum Ltd., 1982.
3 microfiches : ill., figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWZ03)
ACU, OONE

Dome Petroleum was invited by the Senate Committee on the Northern Pipeline to participate in the hearing on the subject of "transportation of petroleum and natural gas North of 60 degrees and any matter related thereto." ... this presentation addresses the Senate questions [which are outlined in the introduction] under the following headings: - general background, - future development, - research in support of development, - arctic marine transportation, - industrial and economic benefits of Beaufort development, - decision making process. [The report also includes a review of northern benefits in the area of employment and training, and manpower planning.] (Au)

Q-108499
Northern accounts payable summary by vendors, 31 August 1978 / Canadian Marine Drilling Limited.
Calgary, Alta. : Canadian Marine Drilling Ltd.
1 microfiche ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWZ04)
ACU

The revenue generated by Dome Petroleum in the communities of Tuktoyaktuk, Inuvik, Coppermine, Aklavik, and Yellowknife is presented in summary form by vendor. (ASTIS)

Q-108502
The role of Dome Petroleum in Canadian resource development / Dome Petroleum Limited. Gallagher, J.P.
Calgary, Alta. : Dome Petroleum Ltd., 1982.
1 microfiche : ill. ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWZ05)
ACU

Mr. Gallagher recently gave this report as an address to a group of investment institutions in six European financial centres in reference to Domes's fifty million Euro-dollar financing. The report includes information on Dome's assets, investments and role in the resource development of Canada. (ASTIS)

Q-108510
Canadian crude oil self-sufficiency : the impact of an incentive pricing regime / Dome Petroleum Limited.
[Calgary, Alta.] : Dome Petroleum Ltd., 1979.
2 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWZ06)
ACU

... Dome maintains that if appropriate new oil pricing policies are instituted which will allow currently relatively economically unattractive enhanced recovery schemes to proceed, not only will large new reserves become available to allow Canada to achieve and maintain self-sufficiency, but also that crude oil self-sufficiency can be achieved very much sooner than has hitherto been assumed possible. This report outlines a crude oil incentive pricing system that will allow Canada to achieve oil self-sufficiency in a very few years. Dome's assessment is presented on what Canada's crude oil supply could be if this incentive pricing regime were adopted. (Au)

Q-108529
1981 social, economic, cultural Beaufort Sea project / Dome Petroleum Limited.
[Calgary, Alta. : Dome Petroleum Ltd.], 1982.
1 microfiche ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWZ07)
ACU

Dome Petroleum is currently conducting oil and gas exploration in the Beaufort Sea and has a social and environmental responsibility to the residents, communities, and local governments of the North. Through its 'Memorandum of Understanding' which incorporates affirmative action programs to involve the Northern people in the socio-economics of oil and gas development, the Company states its commitment for local participation in six main areas: 1) Community Consultation, 2) Northern Employment, 3) Northern Employee Training and Development, 4) Economic Development, 5) Social and Cultural Support, 6) Future Beaufort Sea Development - Northern Participation. This document is a statement of Dome's corporate policies, followed by a statement of its programs and practices with regards to Northern involvement in Beaufort Sea oil and gas exploration, production, and development. (Au)

Q-108537
Preliminary report : laboratory responses to Dome Nektoralik oil / Canada. Dept. of Fisheries and Oceans. Freshwater Institute. Lockhart, W.L. Dome Petroleum Limited [Sponsor].
Winnipeg, Man. : Freshwater Institute, 1981.
1 microfiche : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWZ08)
References.
ACU

A sample of Dome's Nektoralik K-59 crude oil was supplied for testing, and this report will summarize our experience with that oil to date. This report is a preliminary presentation only; it does not contain all data gathered and it contains little reference to existing literature. Studies included: (a) chromatographic analysis of oil, (b) preparation of a 'water soluble fraction', (c) uptake and clearance of oil components, (d) volatilization of oil components from water, (e) toxicity of water soluble fraction to larval fish, (f) toxicity of oil to aquatic plants, (g) anatomical effect of oil on larval fish, (h) induction of fish enzymes by oil. [Results for each study are presented]. (Au)

Q-108545
Northern business directory : companies offering services to the Beaufort petroleum industry / Dome Petroleum Limited.
Inuvik, N.W.T. : Dome Petroleum Ltd., 1982.
2 microfiches : map ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWZ11)
ACU

This directory consists of five parts: 1) northern business listing by area, 2) northern business listing by service group, 3) northern business listing by contact name, 4) northern business company data, 5) blank company data sheets, enclosed for additions, revisions, and corrections to the company data in the Northern Business Directory. Each northern business listed in this directory is assigned a six digit identification code identifying the region, subregion, community, service group, service subgroup and northern ownership. (ASTIS)

Q-108553
A critical risk analysis evaluation of the environmental impact assessment : Beaufort Sea hydrocarbon production proposal / Lemberg Consultants (Canada) Inc. Lemberg, R. Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea [Sponsor].
Montreal : Lemberg Consultants (Canada) Inc., 1983.
1 v. (various pagings) : 28 cm.
(Beaufort E.I.S. technical specialist report)
ACU

... The review contained in this report is designed to assist the Panel in reviewing the risk and risk analysis aspects of the EIS, and determine the degree of compliance of the EIS with the Guidelines issued by the Panel. ... The report is arranged into six sections. Section 2: [Presents] A summary ... and discussion of issues and the reviewer's opinion of the EIS compliance with the Guidelines. Section 3: ... A general outline of risk analysis methodology is provided with reference to its application to the EIS. The risks are divided into two types for purposes of the review: intentional and accidental. Section 4: Discusses the intentional risks and reviews how they are assessed in Volume 4 of the EIS. Comments are made about the adequacy of the assessments. Section 5: Reviews the accidental risks which are assessed in Volume 6 of the EIS. Additional information pertaining to accidental oil spill risks is presented as derived from the data in the EIS. Comments are made about whether the risk analysis of accidents in the EIS is adequate. Section 6: Compares the risks of the two oil transportation options described in the EIS: arctic marine and overland pipeline. The comparison is intended to provide an appreciation of the differences in risk between the two options, particularly at the current conceptual stage of development. (Au)

Q-108588
Beaufort Sea hydrocarbon production proposal : a critical evaluation of proponents' socio-economic impact assessment / Erickson Associates. Erickson, D. Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea [Sponsor].
Victoria, B.C. : Erickson Associates, 1982.
13 p. : table ; 28 cm.
(Beaufort E.I.S. technical specialist report)
ACU

The proponents .... were directed, as part of the Beaufort Sea Environmental Assessment Review, to prepare an environmental impact statement .... to include a description of the existing socio-economic environment, an analysis of the socio-economic impact of the Proposal and the subsequent identification of essential impact management and monitoring measures. The following review was designed to assist the ... Panel in determining whether those requirements had been met. ... The review is a critical one and is, therefore, limited primarily to a discussion of deficiencies. Section 2.0 identifies two problems with the general methods employed by the proponents in conducting the assessment. Section 3.0 reviews the efforts of the proponents to fulfill particular guideline requirements. Some general conclusions about the adequacy of the socio-economic impact assessment are presented in Section 4.0. ... (Au)

Q-108618
Critique of EIS / Mackay, D. Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea [Sponsor].
[S.l. : s.n.], 1982.
8 p. ; 28 cm.
(Beaufort E.I.S. technical specialist report)
ACU

The author of this submission directs his critique of the Beaufort E.I.S. toward the following concerns: long term or chronic impacts of oil release, oil spill frequency and volumes, absolute effect of counter-measures, Mackenzie Valley pipeline spills, other hazardous materials, oil spill scenarios, identification of times and places of unusual vulnerability, tanker safety, operator training, and monitoring and research. (ASTIS)

Q-108634
Review of environmental impact statement concerning transportation of oil from the Beaufort Sea to eastern Canadian markets by arctic tanker / Bonn, W. Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea [Sponsor].
[S.l. : s.n.], 1982.
[8] p. ; 28 cm.
(Beaufort E.I.S. technical specialist report)
ACU

This submission reviews the general description and characteristics of proposed tankers designed to transport oil from the Beaufort Sea to eastern Canadian markets. The summary of significant issues outlines for the Panel, seven points within the E.I.S. which the author feels require further clarification and elaboration by the proponents. (ASTIS)

Q-108642
Interim compendium of written submissions to the Panel on the Dome, Gulf & Esso environmental impact statement / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea.
[Ottawa : Beaufort Sea Environmental Assessment Panel], 1983.
434 p. : figures, table ; 28 cm.
Cover title
References.
ACU

This compendium includes all submissions received by the Beaufort Sea Environmental Assessment Panel as of February 9, 1983. The reports included in the compendium are those submitted by the following groups or government bodies: Dept. of Fisheries & Oceans (Preliminary comments), Labrador Institute of Northern Studies, Environment Canada (Prelimary comments), Mr. Wayne Liebau, Beaufort Sea Alliance, Trans North Air, Dene Nation, Canadian Wildlife Federation, Canadian Nature Federation, Mr. Grafton Njootli (Councillor, Old Crow Band), Dr. C. Eric Tull, Environment Canada, Arctic International Wildlife Range Society, Mrs. Rita Pasicie., Metis Association of the Northwest Territories, Arctic Bay Development Review Committee, Labrador Inuit Association, Inuit Tapirisat of Canada, Fisheries and Oceans Canada, and Department of Indian Affairs and Northern Development (Vol. 1). (ASTIS)

Q-108669
Second (final) compendium of written submissions to the Panel on the Dome, Gulf & Esso environmental impact statement / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea.
[Ottawa : Beaufort Sea Environmental Assessment Panel], 1983.
284 p. : figures ; 28 cm + 2 photocopy reports.
Cover title.
Appendices.
Copies of two late submissions are loosely enclosed.
ACU

This compendium includes all submissions received by the Beaufort Sea Environmental Assessment Panel between February 9 & February 15, 1983. The reports included in the second compendium are those submitted by the following groups and government bodies: Settlement and Band Councils of Fort Norman, Yukon Conservation Society, Mackenzie Dene Regional Council, Dene Community Council - Fort Good Hope, Government of the Northwest Territories, North Slope Borough, Archaeological Survey of Canada, Energy, Mines and Resources Canada, Beaufort Sea Alliance (amendments to earlier submissions), Morten Lindhard, Government of Yukon, Baffin Regional Inuit Association, Dept. of Indian Affairs & Northern Development (Vol. 2), Hamlet of Pond Inlet, Town of Inuvik, and Employment and Immigration Canada. Copies of two late submissions from Arctic Transportation Limited and the Hamlet Council of Norman Wells are also enclosed. (ASTIS)

Q-108715
Etude du contenu "social" des transcriptions des audiences de la commission d'enquete Berger : les autochtones et l'emploi dans le contexte du projet de gazoduc du Mackenzie = Study of the social aspects found in the Berger Hearings transcripts : native employment and the Mackenzie Valley Gas Pipeline Project / Canada. Northern Social Research Division. Lanari, R. Castonguay, R.
[Ottawa : Northern Social Research Division], 1976.
v, 83, 82 p. : ill., maps, tables ; 28 cm.
Preliminary report.
Appendices.
References.
Text in French and English.
QMMNS

The ultimate purpose of this report is to help develop a research program that will assess the socio-economic impact of the construction and operation of an Arctic Island Gas Pipeline. ... The purpose of this report is ... two fold: first and foremost, this is a study of the transcripts from the Berger Inquiry Hearings, and second, an examination of the socio-economic impact studies carried out in the Mackenzie Valley region by the Federal Government and by Canadian Arctic Gas Pipeline Limited. It should be pointed out here that we shall be dealing only with employment; other aspects of the Berger Inquiry will be dealt with in a later report.

En derniere instance, cet essai se veut une contribution a l'elaboration d'un programme de recherche relatif aux impacts socio-economiques de la construction et des operations du gazoduc des Iles de l'Arctique. ... L'objet de cet essai est ... premierement et prioritairement, une etude des transcriptions des audiences de la Commission d'enquete Berger; et deuxiemement, un examen des etudes d'impact socio-economiques menees dans la region de la vallee du Mackenzie par le gouvernement federal et Canadian Arctic Gas Pipeline Limited. Nous tenons a preciser que nous traiterons ici specifiquement de l'emploi; les autres aspects de l'enquete Berger seront traites dans un rapport ulterieur. (Au)

Q-109754
Sump studies IV : permafrost terrain disturbances adjacent to exploratory wellsites, northern Yukon Territory / French, H.M. Canada. Arctic Land Use Research Program [Sponsor].
Ottawa : Indian and Northern Affairs Canada, 1981.
viii, 41 p. : figures, tables ; 28 cm.
(Environmental studies - Canada. Northern Environmental Protection and Renewable Resources Branch, no. 19)
ISBN 0-662-11911-8
References.
ACU

During July 1979 geomorphological investigations were undertaken at five abandoned oil and gas wellsites in Eagle Plain and Peel Plateau regions of northern Yukon Territory (NTS 106L, 116I, 116H). The following wellsites were visited: Aquitaine Alder C-33, Chevron SOBC WM N. Parkin D-61, SOBC Blackstone D-77, Mobil Gulf Peel H-71, and Gulf Mobil Caribou N-25. They were selected as being either representative of general conditions in the area or were known to have experienced terrain and waste drilling fluid disposal problems. The major conclusion is that wellsite terrain disturbances are not obvious as in parts of the Mackenzie Delta and Arctic Islands. This probably reflects the generally lower terrain sensitivity of much of interior Yukon Territory together with the relative rapidity of revegetation in these boreal forest-shrub tundra transition zones. (Au)

Q-112445
Fluorescence and the search for petroleum / Bujak, J.P. Davies, E.H.
(Bio review '82, p. 54-57, figures)
ACU

... [Fluorescence] involves the examination of microfossils that have organic walls, including marine dinoflagellate cysts and the spores and pollen of land plants. These microfossils are excited with ultraviolet light and examined under the microscope. Using various optical filters it is possible to observe the fluorescence in selected parts of the spectrum; the most useful ones are a narrow band filter to observe the blue-green fluorescence and a broad band filter to observe the fluorescence in the yellow to red end of the spectrum. ... Palynologists at the Atlantic Geoscience Centre have examined sediments from a major oil discovery well, Kopanoar M-13, from the Beaufort Sea. ... Although the use of fluorescence techniques to examine fossil organic material is a relatively recent innovation, it has already proved valuable in dating sediments with extensive reworking, as in the Beaufort Sea, and in the recognition of the mature petroleum zone, as discussed for the Hibernia P-15 well. In this way the sites and targets of exploration wells can be selected with greater precision through an increased understanding of the formation of petroleum and the accompanying changes in fluorescence of organic material. (Au)

Q-112682
Information pipeline : Norman Wells Project review / Canada. DIAND.
(March) 1983-
Yellowknife, N.W.T. : DIAND, Project Coordination Office, 1983- .
ill. ; 28 cm.
Issued monthly.
Information taken from first issue.
ACU

"Information Pipeline" will be published monthly by the Project Coordination Office of the Department of Indian Affairs and Northern Development in Yellowknife. It will inform northerners of the department's activities related to the Norman Wells oilfield expansion and pipeline and report on construction progress, social and environmental issues and community affairs. (Au)

Q-112712
The essential elements of social impact assessment, a report prepared for Beaufort Sea Alliance / White, P.M. Beaufort Sea Alliance [Sponsor].
Ottawa : Beaufort Sea Alliance, 1982.
70 leaves ; 28 cm.
Cover title.
Appendices.
Bibliography: p. 66-70.
ACU

The purpose of the Beaufort Sea Alliance position paper on Social Impact Assessment is to discuss the requistes of an adequate Impact Statement and of a good Social Impact Assessment. The paper reviews the social impact literature and then focuses on seven essential socio-economic impact issues. These issues are: development and on-going change, land claims, role of government, public participation, alternative patterns of development, local business and the boom/bust cycle, and amelioration/mitigation strategies. It is hoped that the social impact discussion of these seven impact issues will centre the debate and thus prove to be of assistance to the Panel in its assessment and evaluation of the proponent's Impact Statement and other evidence presented at the EARP hearings. (Au)

Q-112720
Government regulatory capability in the Beaufort Sea Alliance / Nepean Development Consultants. Milne, G.G.D. Sheridan, W. Shields, R. Beaufort Sea Alliance [Sponsor].
Ottawa : Beaufort Sea Alliance, 1982.
67 leaves : figures, tables ; 28 cm.
Cover title.
Appendix I: Memorandum creating COGLA (Canada Oil and Gas Lands Administration).
ACU, NFSMO

... The EARP Panel is scheduled to complete its assessment and terminate its activities by the summer of 1983, eliminating any continuing assessment capability, and leaving no adequate forum within which to evaluate the prospects for, and full social, environmental and economic impacts of northern development. ... The Canada Oil and Gas Lands Administration (COGLA) has recently been jointly created by Energy, Mines and Resources and Indian and Northern Affairs, to consolidate the administration of northern hydrocarbon exploration and development. ... Still outstanding however, are the needs for a description of COGLA's operations, a clarification of COGLA's jurisdiction, and a framework for COGLA's management of off-shore hydrocarbon development north of 60 degrees. The ... recommendations [in this report] specify additional changes necessary to complete the transition to a better management capability [both evaluation and regulation] for the Beaufort Sea - Mackenzie Delta region. (Au)

Q-112801
Canol, the first northern pipeline / Browning, P.
(North/Nord, v. 29, no. 4, Jan. 1983, p. 2-8, map, col. ill.)
ACU, NFSMO

During the Second World War the first great oil pipeline in the north was built, the Canadian American Norman Oil Line. It was destined to bring raw petroleum from Norman Wells to Whitehorse, Skagway and Fairbanks. The project was brought about through collaboration between the U.S. and Canada and inevitably involved the construction of communication routes in a vast region still very little known. Before the impracticality of the project - the quantity of raw petroleum annually routed in this way was so small that more was being consumed than was being produced - the oil pipeline had to be abandoned. (ASTIS)

Q-112810
Norman Wells pipeline / Smart, S.
(North/Nord, v. 29, no. 4, Jan. 1983, p. 9-11, col. ill.)
ACU, NFSMO

Between the CANOL pipeline of the 1940's and that of the Norman Wells Oilfield Expansion and Pipeline Project there has been a world of evolution in thinking. The order of the day is now consulting and planning. In announcing his approval of the project on July 30, 1981, the minister of Indian and Northern Affairs, John Munro, declared a two-year moratorium before the start-up of construction. This interim would permit all participants to express their points of view, particularly the native peoples who inhabit the immediate area of the project along the Mackenzie River. An innovation has been the appointment of fulltime interim project co-ordinator John Scullion of DIAND, in preference to the creation of a costly agency as in the past. (ASTIS)

Q-113107
The Beaufort Sea hydrocarbon production proposal : guidelines for the preparation of an environmental impact statement / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea.
[Ottawa] : Environmental Assessment Review, 1982.
42 p. ; 28 cm.
Appendices.
ACU, NFSMO

The Environmental Assessment and Review Process (EARP) of the Government of Canada requires that proposed federal programs and activities that are likely to have significant environmental or socio-economic effects, be submitted to an Environmental Assessment Panel for review before any decision is made to proceed. ... these Guidelines are being issued by the Panel to DIAND as a basis for the preparation of an Environmental Impact Statement (EIS) by the proponents [Dome Petroleum Limited, Gulf Canada Resources Inc. and Esso Resources Canada Limited] on their Beaufort Sea Hydrocarbon Production Proposal. Changes in these Guidelines can only be made by the Panel. ... The EIS, therefore, should address environmental and socio-economic issues associated with a proposal for hydrocarbon production in the Beaufort Sea-Mackenzie Delta area and alternate modes of transportation to southern markets (tanker, pipelines or both). Project and site specific details, as they are developed, will be reviewed and assessed by other mechanisms at appropriate times. (Au)

Q-113395
Beaufort E.I.S. bibliography / Arctic Science and Technology Information System. Howard, L.M. [Editor]. Goodwin, C.R. [Editor].
Calgary, Alta. : Arctic Institute of North America, 1983.
iii, 66 p. ; 29 cm.
(Occasional publication - Arctic Science and Technology Information System, no. 9)
(APOA project no. 98 : Arctic Science and Technology Information System)
Cover title: Beaufort Sea - Mackenzie Delta environmental impact statement bibliography.
ACU, NFSMO

... This bibliography contains all publications concerning the Beaufort Sea Environmental Assessment Review received on or before Feb. 28, 1983, a total of 198 documents. The following reports are included: Environmental Impact Statement, Support Documents, Reference Works, Other Company Publications, Government Position Statements, Technical Specialist Reports, [and] Other Panel Publications. (Au)

Q-114650
Surveying offshore Canada lands for mineral resource development / Canada. Surveys and Mapping Branch. Jones, H.E. [Editor].
Ottawa : Dept. of Energy, Mines and Resources, Surveys and Mapping Branch, 1982.
viii, 158 p. : figures, tables ; 28 cm.
ISBN 0-660-11343-0
Appendices.
ACU, NFSMO

... In 1969 ... meetings were arranged between industry and government under the auspices of the Surveyor General in EMR. The meetings were held to discuss the technical and administrative difficulties of surveying in the offshore, and to make arrangements whereby they might best be overcome. The arrangements included ... the formation of a six-week workshop, the Workshop on Offshore Surveys, composed of 20 members from various agencies in industry and government. This first workshop was convened from January 12 to February 20, 1970, under the sponsorship of the Surveys and Mapping Branch. Its objectives were to study surveying systems, procedures and amendments to the regulations appropriate to the development of offshore mineral resources. The Workshop decided to confine its terms of reference to three aspects: first, a study of present and potential capabilities of available positioning systems suitable for the Canadian continental margins; second, a consideration of the problem of monumentation or marking of offshore surveys; third, a review of existing survey regulations in light of these findings. The Workshop dealt with surveying as it pertained to oil and gas. ... Since then there have been significant discoveries in the Arctic and on the east coast. ... To review these developments and make further recommendations, a one-week workshop of 25 delegates from government and industry was held March 15-19, 1982 under the auspices of the Interdepartmental Coordinating Committee on Offshore Surveying. The Workshop recommended the production of this third edition of Surveying Offshore Canada Lands for Mineral Resource Development. It brings the second edition up to date with more emphasis on the sequence of events leading to drilling for hydrocarbons in the offshore and there are additional chapters which emphasize positioning aspects of hydrographic surveying, geophysical surveying and sea ice. (Au)

Q-114782
Marching to the beat of the same drum : transportation of petroleum and natural gas north of 60 degrees / Canada. Parliament. Senate. Special Committee on a Northern Gas Pipeline.
[Ottawa] : Queen's Printer, 1983.
84, 91 p. : figures, tables ; 28 cm.
Appendices.
Text in English and French.
ACU, NFSMO

... Frontier petroleum resources have been accorded a central role in securing domestic oil self-sufficiency by 1990. Over the last 10 years, [within] industry, ... much valuable operating experience has been gained and technological advances made in the construction and innovative use of artificial islands, subsea and surface drilling systems and alternate transportation systems. The technical advances achieved to date have, however, been somewhat overshadowed by uncertainties for industry resulting largely from a policy vacuum and unresolved government priorities. Industry has yet to earn its first dollar of revenue from Canadian frontier oil and gas. The point has been reached where clear federal policy is imperative since proposals to produce petroleum resources in the High Arctic, the Beaufort Sea-Mackenzie Delta Region and offshore East Coast have now become a reality. The concern of this study is developments occurring in the Arctic Region .... the first part of this report concentrates on the plans of the companies active in the Beaufort Sea-Mackenzie Delta Region and in the Arctic Islands area. ... Industry is gearing up to move from the exploration and development phases to the production stage in frontier regions. Yet the priorities for frontier hydrocarbon development remain unclear and ground rules for bringing arctic petroleum resources to market are only just being established. Until the Federal Government clarifies its position relative to petroleum resource development by providing firm policy direction, neither industry nor those charged with its regulation will be able to proceed effectively. ... The Committee hopes that by addressing some potential impediments to effective Federal Government co-ordination, it can contribute to the dialogue that must precede any innovative approaches to decision-making on major projects. (Au)

Q-115355
Oil and gas production : the Beaufort Sea - Mackenzie Delta region.
(Beaufort, v. 2, no. 2, Dec. 1982, p. 4-14, ill.)
ACU, NFSMO

For approximately 17 years now oil and gas exploration activities have been carried out in the Beaufort Sea - Mackenzie Delta region. ... However, discovering oil and gas in the Arctic is only the first step. After being found, the hydrocarbon reservoirs must be delineated by further drilling in order to prove that commercial reserves exist. ... Estimated oil reserves at several of these locations are nearing the threshold quantities needed to proceed with production. ... No matter which field is produced first ... oil production will begin at a slow rate. ... The Environmental Impact Statement prepared by the proponents of Beaufort Sea development examines the technical, environmental and socio-economic implications associated with a range of production rates. ... But the rate itself will be influenced by a number of factors including government policies, industry's drilling success rate, and social, economic and environmental considerations. [This article examines the basic requirements for production, climate and geography, wildlife in the region, oil spills and countermeasures, environmental effects of normal activities, and development and the people.] (Au)

Q-115363
Pipelines and the Mackenzie Valley.
(Beaufort, v. 2, no. 2, Dec. 1982, p. 15-20, ill.)
ACU, NFSMO

This article addresses key considerations in the construction of an overland pipeline from the Beaufort Sea - Mackenzie Delta hydrocarbon reserves to Edmonton, Alberta. The factors discussed are: the effect of climate and geography on pipeline construction, the environmental aspects of pipeline construction, the effects the pipeline will have on wildlife, safety considerations, and the socio-economic impacts of pipeline construction on the people of this area. (Au)

Q-115509
Beaufort pioneers pile on pressure as production looms / Cottrill, A.
(Offshore engineering, 1982 [1] Jan., p. 29-33, col. ill.)
ACU, NFSMO

As Arctic offshore pioneers await important production decisions in a number of regions, [the author] provides an in-depth appraisal of the current situation in Canadian and Alaskan waters and focusses particular attention on the Beaufort Sea. (Au)

Q-115517
Countermeasures for major oil spills offshore Canada / Thorton, D.E. Hume, H.
(Spill technology newsletter, v. 7, no. 4, July-Aug., 1982, p. 90-107, figure)
References.
ACU, NFSMO

Canada has never been impacted by a massive marine oil spill. However, a small but finite probability exists that one or more might occur in the next decade as a result of offshore petroleum-related activities. These include the shipment of oil by very large tankers through coastal waters, and the exploitation of undersea oil through exploration, production, and transportation operations. Figure 1 indicates the locations of the major existing and potential petroleum-related activities offshore Canada. The potential extent of activities and the vast length of Canada's coast means that there is a great variety of coastal environments which might be impacted by major spills. However, there are a number of fairly common factors in Canada's offshore regions: the waters are cold and often rough, sea ice is present for large parts of the year, and most are remote from large population centers. Keeping these generalities in mind, we review the main problems and general response strategies for major offshore spills. This leads into a discussion of selected existing and potential response techniques and a definition of their limitations. Finally, we touch on the countermeasure options applicable to oil spills off the west coast. (Au)

Q-115592
A critical appraisal of the economic aspects of the proposed Beaufort Sea development / Davis, H.C. Hainsworth, G.B.
[S.l. : s.n.], 1983.
26 p. ; 29 cm.
(Beaufort E.I.S. technical specialist report)
ACU

Throughout the several volumes of the 1982 environmental impact statement (EIS) of the Beaufort Sea-Mackenzie Delta Hydrocarbon Development Proposal appear three distinct rationale for undertaking the project: (1) provision of national energy self-sufficiency; (2) production of net national economic benefits; and (3) promotion of regional economic development, generally throughout the nation, and particularly in the northwest territories. Each of these objectives is critically reviewed in turn in this report, with major emphasis placed on the latter two. (Au)

Q-115606
A review of the Beaufort Sea hydrocarbon production proposal EIS / Walsh, V. Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea [Sponsor].
[S.l. : s.n.], 1983.
[13] leaves ; 28 cm.
(Beaufort E.I.S. technical specialist report)
ACU

The purpose of this review is to provide an assessment for the Beaufort Sea Environmental Panel of the adequacy and completeness of the Environmental Impact Statement (EIS) prepared for the Beaufort Sea Hydrocarbon Production Proposal. The primary standard against which the EIS will be evaluated is the Guidelines for the Preparation of an Environmental Impact Statement issued by the Panel to the proponent. However, the purpose of the review is not only to provide an assessment of degree of adherence to the guidelines but also of the adequacy of the document as a basis for the Panel Review process. Therefore, the author's opinion as to the EIS prerequisites for an effective public review process will also be utilized where appropriate. ... (Au)

Q-115630
A statement of deficiencies on the environmental impact statement for hydrocarbon development in the Beaufort Sea - Mackenzie Delta region / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea.
[Ottawa] : Beaufort Sea Environmental Assessment Panel, 1983.
31 p. ; 28 cm.
Appendix.
ACU, NFSMO

The Beaufort Sea Environmental Assessment Panel has reviewed the Environmental Impact Statement (EIS) for Hydrocarbon Development in the Beaufort Sea - Mackenzie Delta Region prepared by Dome Petroleum Limited, Esso Resources Canada Limited and Gulf Canada Resources Inc. and transmitted to the Panel by the Department of Indian Affairs and Northern Development in November 1982. The Panel has identified major deficiencies in the EIS in each of the following categories: assessment of socio-economic effects, assessment of environmental effects, oil spills and zone summaries. In addition, the Panel has identified a number of concerns about which it wishes the Proponents to provide further information by means of discussion papers to be submitted at the same time as the response to the Deficiency Statement. (Au)

Q-115690
The development and testing of a helicopter portable burner / Dome Petroleum Limited.
Calgary, Alta. : Dome Petroleum Ltd., [1980?].
1 microfiche : ill., figures, tables ; 11 X 16 cm.
(COOSRA project report, no. CS05)
Appendix.
References.
ACU

A heli-portable burner, suitable for flaring recovered oil at remote Arctic sites, has been developed. The main features of the burner include; (1) a rotary cup atomizer capable of burning 60% water-in-crude oil emulsions, (2) burning rates up to 3,300 l/hr. (500 bbl/day), (3) 3 packages, the burner weighing 1,264 kg, the control unit weighing 900 kg and a 20 kw power plant weighing 900 kg, (4) secondary use as a waste oil disposal system. The burner was constructed and factory tested in West Germany and subsequently modified. The final version was field tested at the site of a spill in the Mackenzie Delta where it was used to dispose of some 800 cubic m (175,000 gal.) of recovered oil. The burner was also used to dispose of approximately 2,800 cubic m (613,000 gal.) of waste oil and slops at Dome's Tuktoyaktuk shore base. (Au)

Q-115711
Return to Balaena Bay : long term effects of a large scale crude oil spill under arctic sea ice 1975 to 1981 / Dickins (D.F.) Engineering Consulting. Arctic Laboratories Limited. Hellebust, J. Gulf Canada Resources Inc. [Sponsor].
[S.l.] : D.F. Dickins Engineering, 1981.
3 microfiches : ill., figures, tables ; 11 X 16 cm.
(COOSRA project report, no. CS07)
Appendices.
References.
ACU, NFSMO

A combined chemical/biological study was conducted during July, 1981 at Balaena Bay, N.W.T. with the aim of assessing the degree of environmental impact as the result of the experimental oil spills conducted there over the winter of 1974/75. The study included an analysis of benthic, beach and salt marsh sediments for non-polar and polyaromatic hydrocarbons, an histopathological examination of the polychaete Pectinaria hyperborea and the clam Macoma calcarea, an assessment of the benthic invertebrate community and a study of effects on vegetation in the contaminated areas. The site investigation revealed the presence of weathered oil residues coating rocks in a narrow strip of the intertidal along about 900 m of shoreline. Total volume remaining was estimated at 0.2 cubic m, with area coverage ranging from 0.1% to 5% in the worst areas. Heavily oiled salt marsh experimental sites showed grass recovery rates of less than 13%, with about 5% of the original oil concentration remaining in upper soil layers. [The findings of the chemical/biological analyses are indicated.] ... In general it appears that detectable impacts of the 1974/75 under-ice spills on sediment hydrocarbon content, histopathological condition of Pectinaria hyperborea and Macoma calcarea, and benthic community structure are small. (Au)

Q-115746
Subsea containment study : phase 3, environmental loads / CanOcean Resources Ltd. Fung, D. Ng, K. Dome Petroleum Limited [Sponsor].
New Westminister, B.C. : CanOcean Resources Ltd., 1981.
2 microfiches : figures, tables ; 11 X 15 cm.
(COOSRA project report, no. CS08V3)
Appendices.
References.
ACU, NFSMO

The present study is to evaluate the environmental loads acting upon the oil spill containment structure consisting of an incinerator, risers, collector and the mooring systems. It has been found that very high ice forces are involved. Consequently, a very high power mooring system is expected. Besides ice strength and thickness, the magnitude of the ice forces depends largely upon the performance of the structure during ice breaking, and the configuration of the ice ridge. The incinerator should be designed to have a slightly inclined surface to enhance a bending failure of ice, and at the same time to reduce the rotation at the riser connection(s). (Au)

Q-115754
Subsea containment study : phase 4, preliminary system design / CanOcean Resources Ltd. Dome Petroleum Limited [Sponsor].
Calgary, Alta. : CanOcean Resources Ltd., 1982.
1 microfiche : figures ; 11 X 16 cm.
(COOSRA project report, no. CS08V4)
The fourth phase has been referenced as task 2 in succeeding reports.
Appendices.
References.
ACU, NFSMO

A preliminary design of the proposed type of subsea oil spill containment system is presented. Further work involving computer simulation and model tests are necessary to ensure the survival of the system in the presence of ice ridges. The system is expensive. Its deployment within a matter of three weeks is difficult even if it is prefabricated and assembled. Furthermore, no practical solutions have yet been found for the pretensioning of the mooring lines. [The first part of the study is] ... a preliminary design of the subsea containment system .... The second part of the study examines the deployment and operational aspects of the system. ... The two major areas where the system is to be used are the Beaufort Sea and the East Coast. Water depths range from 20 m to 80 m in the Beaufort Sea. In the East Coast, water depths up to 200 m are considered. The system has to break through 2 m thick ice sheets during normal operations. Under the influence of large ice features, the incinerator submerges. It has sufficient buoyancy to pierce through the ice sheets again after the passage of the ridges. ... This study can only attempt to highlight the requirements and the problems associated with the system. (Au)

Q-115851
Oil and gas activities 1981 : report on the activities in 1981 of the oil and gas industry in the Yukon Territory and Northwest Territories / Canada. Oil and Gas Liaison and Co-ordination Directorate.
Ottawa : DIAND, 1982.
87 p. : ill., figures, map, table ; 28 cm.
ISBN 0-662-12217-5
Appendices.
ACU

The Northern Oil and Gas Liaison and Coordinating Directorate is a liaison between DIAND and COGLA and serves "to ensure that northern policy and northern concerns are reflected in the administration of northern oil and gas rights and associated oil and gas activities." This report for the Yukon and Northwest Territories summarizes new discoveries of oil and gas, new legislation relevant to the oil and gas industry, recent exploration agreements reached, revenues for the calendar year, drilling activity, production figures for oil and gas, and on-going research in oil spill countermeasures and regional environmental studies. (ASTIS)

Q-116084
The construction of an artificial drilling island in intermediate water depths in the Beaufort Sea / Boone, D.J.
(Twelfth Annual Offshore Technology Conference 1980, proceedings. - Dallas : Offshore Technology Conference, 1980, v. 4, p. 187-195, figures)
(OTC paper, 3873)
References.
ACU, NFSMO

In October of 1979, Esso Resources Canada Limited, a wholly-owned subsidiary of Imperial Oil Limited, completed its 15th artificial drilling island in the Beaufort Sea, 26 km north of the Mackenzie River Delta in the western Canadian Arctic. Issungnak, as the island is known, is unique in size and construction. ... The success of the project hinged on finding sufficient granular borrow material within the range of the suction dredges and their pipelines. ... An on site mini-computer controlled system ensured the accurate placement of fill to optimize the use of construction time. The system was also used to collect hydrographic survey data and generate fill volumes, contour maps, and slope profiles for use in planning construction and dredging strategies. Details of the island construction are presented in this paper with special attention given to site conditions, design criteria, and construction techniques and control. The techniques used include innovative approaches to surveying, dredging, and the use of floating pipelines in hostile marine conditions. (Au)

Q-116130
Special mooring systems using remote controlled quick disconnects for Beaufort Sea drilling operations / Lasch, J.E.   Pearlman, M.D.   Riotte, E.C.
(Twelfth Annual Offshore Technology Conference 1980, proceedings. - Dallas : Offshore Technology Conference, 1980, v. 4, p. 339-344, figures, table)
(OTC paper, 3888)
References.
ACU, NFSMO

In the early 1970's InterOcean Systems, Inc. developed a remotely controlled rig anchor release (RAR) to provide an anchored drilling vessel with the ability to remotely (by sonar signals) and rapidly disconnect its anchor without cutting the anchor cables. This paper describes the special mooring systems utilizing the RAR for Beaufort Sea drilling operations. These systems have been utilized by Canadian Marine Drilling, Ltd., the drilling subsidiary of Dome Petroleum in their Beaufort Sea operations. ... Economic and safety advantages are discussed. Future uses and potential value of the mooring systems are presented, with examples of applications in other areas. (Au)

Q-116157
Performance of artificial offshore islands under wave and earthquake loading : field data analyses / Finn, W.D.L.
(Fourteenth Annual Offshore Technology Conference 1982, proceedings. - Dallas : Offshore Technology Conference, 1982, v. 1, p. 661-671, figures)
(OTC paper, 4220)
References.
ACU, NFSMO

Two methods of analysis are described for evaluating the effects of waves on the slopes of an artificial offshore island constructed of cohesionless material. One method considers the effects of the instantaneous stress and porewater pressure fields on stability; the other evaluates the cumulative effects of the many waves in a storm. A method is also presented for determining the acceleration and porewater pressure responses of an island to strong earthquake shaking. Field verification is presented for the analysis for predicting instantaneous porewater pressures due to waves. No field data is available to check the predictions of the analysis of cumulative effects of waves. Analyses of typical designs by this method indicates the importance of maintaining permeabilities higher than .0001 cm/sec in island fill to avoid stability and liquefaction problems under wave loading. A full scale verification of the earthquake response analysis is provided by the recorded acceleration and porewater pressure responses of a man-made island in Tokyo Bay during a recent large earthquake. (Au)

Q-116190
Dredging and construction techniques for steep slopes on artificial drilling islands in the Canadian Arctic / Dikken, J.J.   Brakel, J.
(Fourteenth Annual Offshore Technology Conference 1982, proceedings. - Dallas : Offshore Technology Conference, 1982, v. 1, p. 713-719, figures)
(OTC paper, 4225)
References.
ACU, NFSMO

A method is described, that has been developed for the construction of sand berms for artificial islands in the Canadian Beaufort Sea. The method leads to steeper slopes of the submerged sand. Side slopes of 1:5 have been obtained resulting in diminished material requirement with consequent reduction in time and expenditure. ... This paper describes a system of controlled placing of dredged material under water enabling the economical construction of artificial islands. The system has been used successfully at various projects such as the covering of pipelines and the construction of the Tarsiut Island in the Canadian Beaufort Sea for Dome Petroleum. (Au)

Q-116220
Ice ride-up on a man-made island / Abdelnour, R. Sayed, M. Metpe, M.
(Fourteenth Annual Offshore Technology Conference 1982, proceedings. - Dallas : Offshore Technology Conference, 1982, v. 3, p. 141-152, figures, table)
(OTC paper, 4313)
References.
ACU, NFSMO

The potential of ice ride-up on a man made island, in the Beaufort Sea, and the associated ice forces were investigated through a series of model scale experiments in ARCTEC CANADA'S synthetic ice basin. The study was carried out in April 1976 for ESSO RESOURCES on behalf of the Arctic Petroleum Operator Association, project number 109. In this paper, the test procedure, the results and their analysis are presented. In this study, the influence of ice thickness, ice properties and the scale factor on the ice ride-up extent over the island slope and ice forces on the Island were investigated. A simple analytical model was also used to correlate the experimental results and evaluate the ice ride-up likelihood for a wide range of ice conditions. (Au)

Q-116254
Design aspects of a mobile arctic caisson / Bruce, J.C. Harrington, A.G.
(Fourteenth Annual Offshore Technology Conference 1982, proceedings. - Dallas : Offshore Technology Conference, 1982, v. 3, p. 405-416, figures)
(OTC paper, 4333)
References.
ACU, NFSMO

This paper describes the main features of a bottom founded mobile arctic structure which will have the capability of year round operation in a variety of ice conditions in water depths ranging from some 15 to 40 metres. The caisson is essentially a continuous steel annulus supporting a deck carrying drilling and top side facilities. The core of the annulus will be filled with sand to provide most of the resistance to horizontal ice loading. A feature of the design is that means are incorporated for keeping the ballast water, and the sand core, in an unfrozen state throughout the winter. (Au)

Q-116351
Modelling ice rubble fields around arctic offshore structures / Allyn, F.B. Charpentier, K.
(Fourteenth Annual Offshore Technology Conference 1982, proceedings. - Dallas : Offshore Technology Conference, 1982, v. 4, p. 501-517, figures, tables)
(OTC paper, 4422)
References.
ACU, NFSMO

Ice rubble fields, extensive accumulations of fractured ice broken out of a moving ice sheet, form around most Arctic offshore structures located in a dynamic ice environment. The extent and influence of such a rubble field are principally governed by the water depth, ice movements, properties of the ice and geometry of the structure. The authors have developed a computer simulation program which calculates the rubble field extent and properties that will accumulate around various offshore structures located in the path of moving ice. ... This tool provides the basis for a more rational calculation of force and ice scour reductions, compared to traditional calculations, as well as the basis for an assessment of the operational problems of product export and resupply over and through free floating or grounded rubble. Pre- and post-processors are used to develop statistics on the ice movement data, and to plot the results of rubble extent, rubble crossections, and pressure transmission calculations. The model has been applied to numerous artificial offshore structures, and for verification purposes, to several naturally occuring features. (Au)

Q-116661
The prediction of extreme keel depths from sea ice profiles / Wadhams, P.
(Cold regions science and technology, v. 6, no. 3, Feb. 1983, p. 257-266, figures, tables)
References.
ACU, NFSMO

The prediction of return periods of extremely deep pressure ridge keels is discussed, using as data a 1400 km submarine profile obtained by U.S.S. "Gurnard" in the Beaufort Sea. Three techniques of predicting return periods at a point are examined: the use of the negative exponential distribution; a depth crossing technique; and a probability plotting technique. The problem of predicting return periods along a line is then examined with reference to ice scouring across seabed pipeline routes. A technique which combines keel statistics and scour depth statistics is used to compute the pipeline burial depth necessary to avoid disturbance by ice for a specified period. (Au)

Q-116769
Beaufort Sea - Mackenzie Delta environmental impact statement : zone summary, Northwest Passage region / Dome Petroleum Limited. Esso Resources Canada Limited. Gulf Canada Resources Inc.
[Calgary : Dome Petroleum Limited], 1983.
v, 94 p. : ill. ; 28 cm.
Cover title: Beaufort Sea-Mackenzie Delta environmental impact statement, supplementary information 1983.
Text in English and Inuktitut.
ACU

A seven-volume Environmental Impact Statement was published by the three companies in 1982. ... To ensure that everyone can participate successfully in the community discussions, a summary for each region or zone studied in the statement has been prepared in clear, non-technical language .... This report is the summary for the Northwest Passage region or zone. Two other summaries cover the Beaufort Sea-Mackenzie Delta zone and the Mackenzie Valley. (Au)

Q-116777
Beaufort Sea - Mackenzie Delta environmental impact statement : zone summary, Mackenzie Valley region / Dome Petroleum Limited. Esso Resources Canada Limited. Gulf Canada Resources Inc.
[Calgary : Dome Petroleum Limited], 1983.
68 p. : ill., 28 cm.
Cover title: Beaufort Sea-Mackenzie Delta environmental impact statement, supplementary information 1983.
ACU

A seven-volume Environmental Impact Statement was published by the three companies in 1982. ... To ensure that everyone can participate successfully in the community discussions, a summary for each region or zone studied in the statement has been prepared, in clear, non-technical language .... This report is the summary for the Mackenzie Valley region or zone. Two other summaries cover the Beaufort Sea Mackenzie Delta zone and the Northwest Passage. (Au)

Q-116785
Beaufort Sea - Mackenzie Delta environmental
impact statement : zone summary, Beaufort Sea -
Mackenzie Delta region / Dome Petroleum
Limited. Esso Resources Canada Limited.
Gulf Canada Resources Inc.
[Calgary : Dome Petroleum Limited], 1983.
iii, 76 p. : ill. ; 29 cm.
Cover title: Beaufort Sea-Mackenzie Delta
environmental impact statement, supplementary
information 1983.
ACU

A seven-volume Environmental Impact Statement was published by the three companies in 1982. ... To ensure that everyone can participate successfully in the community discussions, a summary for each region or zone studied in the statement has been prepared, in clear, non-technical language .... This report is the summary for the Beaufort Sea-Mackenzie Delta region or zone. Two other summaries cover the Northwest passage zone and the Mackenzie Valley. (Au)

Q-116793
Beaufort Sea - Mackenzie Delta environmental
impact statement : response to deficiencies,
environmental and technical issues / Dome
Petroleum Limited. Esso Resources Canada
Limited. Gulf Canada Resources Inc.
[Calgary : Dome Petroleum Limited], 1983.
1 v. (various pagings) : ill. ; 28 cm.
Cover title: Beaufort Sea-Mackenzie Delta
environmental impact statement, supplementary
information 1983.
ACU, NFSMO

The Beaufort Sea Environmental Assessment Panel has reviewed the Environmental Impact Statement (EIS) for hydrocarbon development in the Beaufort Sea-Mackenzie Delta Region and has identified major deficiencies in the EIS in each of the following categories: 1. Assessment of Socio-Economic Effects, 2. Assement of Environmental Effects, 3. Oil Spills, 4. Zone summaries, 5. Further information requirements (Discussion Papers). This document responds to items 2, 3, and 5. Item 1 is dealt with in a document entitled Socio-economic Effects, and individual Zone Summary reports have been prepared for each of the three geographic zones where development activities may take place, namely the Beaufort Sea-Mackenzie Delta, the Northwest Passage, and the Mackenzie Valley. ... (Au)

Q-116807
Appendix I : community consultation/information
review / Dome Petroleum Limited. Esso
Resources Canada Limited. Gulf Canada
Resources Inc.
[Calgary : Dome Petroleum Limited], 1983.
1 v. ; 28 cm.
Cover title: Beaufort Sea-Mackenzie Delta
environmental impact statement, supplementary
information 1983.
Contents: Dome/Esso/Gulf EIS
Information/Consultation Summary; Post
Deficiency Letter - new consultation material
Dome/Esso/Gulf; Dome, Esso, Gulf
Information/Consultation summaries: Beaufort
Explorations, Norman Wells Expansion Project.
Section 1.6 lacking: Fort Good Hope meetings re
oil spill investigation.
ACU

Appendix I is a compilation of Summary sheets and other material documenting the northern community information/consultation activities and initiatives of Dome, Esso and Gulf jointly with respect to the E.I.S. and as individual companies with respect to their exploration and development operations. The summary sheets are based on minutes, letters and other material in the company files documenting these visits. ... Following receipt of the Panel's Deficiency Statement, industry initiated additional consultation activities. These are listed in this Appendix as Beaufort E.I.S. "Deficiencies" Community Meetings. Six Beaufort communities were visited as a joint E.I.S. activity by the three proponents. (Au)

Q-116815
Appendix II : mitigative measures and action plans
/ Dome Petroleum Limited. Esso Resources
Canada Limited. Gulf Canada Resources Inc.
[Calgary : Dome Petroleum Limited], 1983.
1 v. [various pagings] ; 28 cm.
Cover title: Beaufort Sea-Mackenzie Delta
environmental impact statement, supplementary
information 1983.
Contents: Comparison of Beaufort policies in
COGLA Exploration Agreements of Dome, Esso and
Gulf; Dome Northern
Socio-Economic/Environmental Action Plan 1982;
Dome-Canada benefits of the Beaufort
Exploration Program 1982-1987; Dome 1982
Beaufort Sea operations evaluation; Esso
Resources Beaufort Mackenzie Exploration
Agreement - Northern Benefits Action Plan.
ACU

The exploration agreements in the Beaufort Sea and the socio-economic action plans of Dome, Esso and Gulf are compared. Among the action plans discussed are manpower plans, community liaison and consultation, social and cultural affairs, northern benefits, and monitoring of the planning process. (ASTIS)

Q-116823
Beaufort Sea - Mackenzie Delta environmental
impact statement : response to deficiencies,
socio-economic issues / Dome Petroleum Limited.
Esso Resources Canada Limited. Gulf Canada
Resources Inc.
[Calgary : Dome Petroleum Limited], 1983.
1 v. (various pagings) : ill. ; 28 cm.
Cover title: Beaufort Sea-Mackenzie Delta
environmental impact statement, supplementary
information 1983.
ACU

The Beaufort Sea Environmental Assessment Panel after reviewing the Environmental Impact Statement (EIS) for hydrocarbon development in the Beaufort Sea-Mackenzie Delta Region identified major deficiencies in the EIS in the following categories: 1. Assessment of Socio-Economic Effects, 2. Assessment of Environmental Effects, 3. Oil Spills, 4. Zone Summaries, 5. Further information requirements (Discussion Papers). This document responds to Item 1. Items 2, 3 and 5 are dealt with in a document entitled Environmental and Technical Issues, and individual Zone Summary reports have been prepared for each of the three geographic zones where development activities may take place, the Beaufort Sea-Mackenzie Delta, the Northwest Passage, and the Mackenzie Valley in response to Item 4. ... (Au)

Q-116831
Esso north / Esso Resources Canada Limited.
No. 1 (1982)- .
Yellowknife, N.W.T. : Esso Resources Canada
Limited, 1982- .
ill. ; 43 X 28 cm.
Published quarterly.
Information taken from issue no. 3, 1983.
ACU

This publication provides news of Esso's activities in northern Canada, especially the Norman Wells Expansion Project and the Beaufort exploration agreement operations. Business and employment opportunities are included. (ASTIS)

Q-117919
Islands in the sea ... built by Esso / Forrest, D. (Review - Imperial Oil Limited, v. 67, no. 2, 1983, p. 6-11, ill.)
ACU, NFSMO

The author discusses Esso's Beaufort Sea operations which have been ongoing since 1965. Esso developed the concept of the temporary exploration island and went on to build more than any other company, 18 have already been completed and a nineteenth is under construction. Some of the more outstanding artificial islands are described here. (ASTIS)

Q-118117
A survey of facilities sites in relation to aquatic habitats along the IPL pipeline routes Norman Wells, NWT to Zama terminal, Alta. / Aquatic Environments Limited. McCart, D. McCart, P. Interprovincial Pipe Line (NW) Ltd. [Sponsor].
[Edmonton, Alta.] : Interprovincial Pipe Line (NW) Ltd., 1982.
16 leaves : maps (folded) ; 29 cm.
ACU

An aerial survey of facilities sites along the IPL pipeline route from Norman Wells, NWT, to Zama Terminal, Alberta, was conducted between 20 and 25 June 1981. Facilities sites included in the survey were those proposed for construction camps, stockpile sites, staging areas, pump stations, remote maintenance bases, and metering stations. Of these, only the pump stations, the remote maintenance bases, and the metering stations are considered to be permanent structures. In some cases, site locations were altered from the original drawings, after consultation in the field ... The objectives of the study were twofold: ... to present general recommendations for the location and operation of facilities sites; and ... to assess the location and activity of each site to determine the possible impact on aquatic resources. [Site-specific recommendations are included.] (Au)

Q-118125
An assessment of the fisheries resources of the Great Bear and Mackenzie Rivers in the vicinity of proposed IPL pipeline crossings / Aquatic Environments Limited. McCart, D. Interprovincial Pipe Line (NW) Ltd. [Sponsor].
[Edmonton, Alta.] : Interprovincial Pipe Line (NW) Ltd., 1982.
33 leaves : figures, tables ; 29 cm.
References.
ACU

Interprovincial Pipe Line (N.W.) Ltd. proposes to cross the two largest streams on its pipeline route, the Great Bear River and the Mackenzie River, in the late summer and early fall. The major objectives of this study were to: 1. Describe the fish populations ... with particular emphasis on migrating or spawning fish that may be in the vicinity of the crossings during the construction period; 2. Assess the potential impact of pipeline construction on fish populations in the two rivers; and 3. Provide suggestions for mitigative measures in the design, construction, and timing of the crossing so that, if possible, potential impacts on local fish populations are avoided. ... (Au)

Q-118133
Norman Wells Pipeline environmental protection plan for winter clearing activities 1982-1983 / Hardy Associates (1978) Limited. Interprovincial Pipe Line (NW) Ltd. [Sponsor].
[Edmonton, Alta.] : Interprovincial Pipe Line (NW) Ltd., 1982.
v, 50, 9 leaves : figures, tables ; 29 cm.
Appendices.
ACU

This document provides environmental protection measures specific to winter clearing activities planned for the period December 1982 to April 1983. It is designed to be used in conjunction with coded alignment sheets which contain clearly marked locations and areas designated for clearing and burning activities. The protection plan summarizes project activities, schedules and required approvals ... and ... presents the general and specific project procedures designed for optimum protection of terrain, wildlife habitat, aquatic habitat, and historical resources. ... (Au)

Q-118141
Norman Wells Pipeline environmental protection plan for winter clearing and site development activities 1982-1983 : addendum to site development activities / Hardy Associates (1978) Limited. Interprovincial Pipe Line (NW) Ltd. [Sponsor].
[Edmonton, Alta.] : Interprovincial Pipe Line (NW) Ltd., 1982.
vi, 20 leaves : figures, tables ; 29 cm.
Appendix.
ACU

This addendum to IPL's environmental protection plan for winter clearing and site development activities describes the planned activities to follow completion of 1983 winter clearing at off-right-of-way sites. Activities include the following: development of borrow pits, construction of gravel pads at camp sites, fuel storage sites, pipe storage sites and access roads. A list of the sites and their locations is provided. The environmental inspection program for preconstruction activities is outlined. (ASTIS)

Q-118168
Late winter surveys of aquatic resources along the IPL pipeline route Norman Wells, NWT to Zama Terminal, Alta. / Aquatic Environments Limited. McCart, D. McCart, P. Interprovincial Pipe Line (NW) Ltd. [Sponsor].
[Edmonton, Alta.] : Interprovincial Pipe Line (NW) Ltd., 1982.
i, 28 leaves : maps (folding), tables ; 29 cm.
References.
ACU

Winter construction of the Interprovincial Pipeline from Norman Wells, NWT, to Zama City, Alberta, will result in some disturbance to streambeds crossed by the pipeline route. The objectives of the study reported here were to: 1. Assess the potential for fish overwintering in the vicinity of stream crossings; and 2. Suggest mitigative measures to reduce the impact of winter construction where overwintering fish are likely to occur. Discussion in this report is limited to streams with some fish overwintering potential. ... (Au)

Q-118176
Environmental education program for inspectors and construction staff for clearing and preconstruction activities on the IPL Norman Wells Pipeline / Hardy Associates (1978) Limited. Interprovincial Pipe Line (NW) Ltd. [Sponsor].
[Edmonton, Alta.] : Interprovincial Pipe Line (NW) Ltd., 1982.
1 v. (various pagings) ; 29 cm.
References.
ACU

... This report is a description of the environmental education program to be conducted by Interprovincial Pipe Line (NW) Ltd. for all inspection and construction staff. Emphasis in this report is placed on the program for clearing and pre-construction activities; construction activities will be addressed in a report scheduled for submission in January 1983. ... Course objectives, schedule and duration are included. ... (Au)

Q-118184
Norman Wells Pipeline environmental assessment of borrow pits scheduled for development in winter 1983 / Hardy Associates (1978) Limited.
Interprovincial Pipe Line (NW) Ltd. [Sponsor].
[Edmonton, Alta.] : Interprovincial Pipe Line (NW) Ltd., 1982.
iv, 36 leaves : figure, table ; 29 cm.
ACU

... This report provides a review of predevelopment environmental conditions, an assessment of potential impacts resulting from development, and appropriate preliminary reclamation procedures for borrow sites scheduled for development along the Mackenzie Valley Pipeline route in winter 1983. ... (Au)

Q-118192
Summary report on stream crossings along proposed pipeline Norman Wells, N.W.T. to Zama, Alberta : engineering data and design / Hardy Associates (1978) Limited. Interprovincial Pipe Line (NW) Ltd. [Sponsor].
Edmonton, Alta. : Interprovincial Pipe Line (NW) Ltd., 1982.
18 leaves : figures (some folded), map, table ; 29 cm.
Appendices.
ACU

... The proposed [IPL] line will cross several dozen rivers and streams. ... Hardy Associates (1978) Ltd. have been retained to provide the geotechnical and river engineering input to final design of the stream crossings along the proposed system. ... The scope of the present report is limited to the segment of each proposed crossing which lies beneath the stream channel and associated flood plain. Further, this report addresses only the geotechnical/river engineering factors affecting stream crossings and in general provides information on the extent of vertical and lateral cover required to maintain pipeline integrity. (Au)

Q-118206
Reassessment of plans to minimize terrain damage along the Interprovincial Pipe Line (NW) Ltd. oil pipeline from Norman Wells to Zama / Hardy Associates (1978) Limited. Interprovincial Pipe Line (NW) Ltd. [Sponsor].
[Edmonton, Alta.] : Interprovincial Pipe Line (NW) Ltd., 1982.
iii, 25 leaves ; 29 cm.
References.
ACU

... This reassessment, which is in response to requirements set forth by the National Energy Board, took the form of a review of the existing literature, supplementary field and office studies and the development of an outline of standard construction procedures to maintain terrain stability. ... Study programs have been carried out by Interprovincial Pipe Line to gather information applicable to the mitigation of terrain damage. These can be divided into geotechnical studies, geophysical studies and environmental studies. ... The overall conclusion based on the additional studies and literature review is that Interprovincial Pipe Line's plans to minimize terrain damage, as presented to the National Energy Board, were adequate and sufficient to ensure minimal disruption to the terrain along the pipeline route. (Au)

Q-118222
Environmental protection plan (EPP) outline / Hardy Associates (1978) Limited.
Interprovincial Pipe Line (NW) Ltd. [Sponsor].
[Edmonton, Alta.] : Interprovincial Pipe Line (NW) Ltd., 1982.
iv, 19 leaves ; 29 cm.
ACU

This volume describes the organization into five volumes of the environmental protection plan of Interprovincial Pipe Line (NW) Ltd. A detailed description of the format of each volume is given, but actual plan content is not included. (ASTIS)

Q-118796
Mitigative measures for fish resources in the vicinity of water crossings along the Norman Wells to Zama pipeline / Hardy Associates (1978) Limited. Interprovincial Pipe Line (NW) Ltd. [Sponsor].
[Edmonton, Alta.] : Interprovincial Pipe Line (NW) Ltd., 1982.
v, 30 leaves : figures, maps (folded), tables ; 29 cm.
Appendix.
References.
ACU

This report evaluates the impact of pipeline construction on fish populations at stream and river crossings along the proposed pipeline route. Streams and rivers which could be affected by construction are discussed along with measures to mitigate these impacts. This assessment of impacts and mitigative measures is based on fisheries studies by McCart and McCart (1982) and McCart (1982). (Au)

Q-118800
Inspection of wildlife habitat at facility sites along the Norman Wells Pipeline / McCourt Management Ltd. Ealey, D.M. Interprovincial Pipe Line (NW) Ltd. [Sponsor].
[Edmonton, Alta.] : Interprovincial Pipe Line (NW) Ltd., 1982.
v, 53 leaves : figures, maps (folded) ; 29 cm.
ACU

An aerial and ground inspection of pumping station sites, stockpile sites, construction camp sites, river crossing sites, and access roads associated with the Norman Wells pipeline was conducted between 19 June - 1 July 1981. ... The purpose of the study was to detect any critical wildlife habitat which might be affected by activities associated with the facility sites. ... Critical habitat ... included: dens for over-wintering bears and for other carnivores; mineral licks and winter range for ungulates, primarily moose; nest sites for raptors; and any habitat which may have a diversity of species or a large number of any single species on a regular basis. (Au)

Q-118931
Initial impact assessment Dempster Corridor / Alaska Highway Pipeline Panel.
[Winnipeg, Man.] : Alaska Highway Pipeline Panel, 1979.
1 v. (various pagings) : figures, tables ; 28 cm.
References.
Appendices.
Partial contents: Proceedings of Yukon Workshop on public involvement in pipeline impact management held 1978 at Whitehorse, Y.T.; Proceedings of a Workshop, The Porcupine Caribou Herd and the Dempster Corridor on the Mackenzie Delta.; Impact of the Dempster

Corridor on the Mackenzie Delta.
ACU

This report deals with the impacts on the biological, physical and human environments which we think will result from the construction and operation of the proposed Dempster Highway gas pipeline. Even more important, it deals with other developments that are, or will probably be, associated with the pipeline, including the highway itself. ... (Au)

Q-118940
Initial impact assessment Dempster Corridor, executive summary / Alaska Highway Pipeline Panel.
[Winnipeg, Man.] : Alaska Highway Pipeline Panel, 1979?
15 p. : ill., table ; 28 cm.
ACU

... This report summarizes the Alaska Highway Pipeline Panel's assessment of the physical, biological and socio-economic impacts of the Dempster pipeline and associated activities. In making this assessment it has been necessary to evaluate the impacts of the recently completed Dempster Highway as well as gas plants, gas gathering systems and other consequential support activities that will inevitably follow if a gas pipeline is built. The Panel feels that an impact assessment which considers the pipeline in isolation will be incomplete and misleading. ... (Au)

Q-119008
Issungnak oceanographic survey 1981-1982 / Esso Resources Canada Limited [Sponsor]. Gulf Canada Resources Inc. [Sponsor]. Dome Petroleum Limited [Sponsor].
[Calgary, Alta.] : Esso Resources Canada L [1983].
1 v. (various pagings) : figures, tables ; 29 cm.
Appendices.
References.
Part C arrived separately and may therefore be enclosed loosely with Parts A, B and D, or individually bound.
Contents: Part A. Oceanographic properties / Arctic Laboratories Limited, P. Erickson, D. Thomas, R.J. Pett, B. de Lange Boom. - Part B. Benthic macroinvertebrates / IEC Beak Consultants. - Part C. Macrobiology / J.N. Bunch, F. Dugre, T. Cartier. - Part D. A seasonal study of the epontic and planktonic communities near the Issungnak artificial island and McKinley Bay in the Canadian Beaufort Sea.
ACU

The Issungnak Oceanographic Survey was conducted near Issungnak, an artificial island site in the Canadian Beaufort Sea. Sampling occurred during two winter seasons and one summer season in 1981-1982. (Au)

Q-119539
653 M$ price tag tied to Norman Wells pipeline facilities / Rhiness, J.
(Canadian petroleum, v. 24, no. 2, Mar. 1983, p. 28-31, ill.)
ACU, NFSMO

This article provides a general cost breakdown for the Norman Wells to Zama crude oil pipeline and a description of the Norman Wells Oilfield Expansion. (ASTIS)

Q-119555
Modularizing the Norman Wells processing facility.
(Canadian petroleum, v. 24, no. 6, July 1983, p. 27-28)
ACU, NFSMO

This article describes the history, design criteria and construction of the Norman Wells Central Processing Facility, the first of its kind to be fully modularized for the Canadian Arctic. (ASTIS)

Q-120316
Esso CRI drilling system now complete.
(Oilweek, v. 34, no. 29, Aug. 22, 1983, p. 29-33)
ACU, NFSMO

This article describes the design, construction and testing of Esso Resources Canada's new $20 million Caisson Rig 7, the largest rig owned by Esso and specifically designed for use on the initial caisson retained island exploratory drilling program to begin this fall. (ASTIS)

Q-120618
Environmental impact statement (EIS) concerning hydrocarbon development in the Beaufort Sea/Mackenzie Delta region / Ottawa Field-Naturalists' Club.
Ottawa : Ottawa Field Naturalists' Club, 1983.
9 p. ; 28 cm.
ACU

The Ottawa Field-Naturalists Club presents its comments on the Environmental Impact Statement concerning hydrocarbon development in the Beaufort Sea-Mackenzie Delta region for consideration by the Beaufort Sea Environmental Assessment Panel. (ASTIS)

Q-120669
Fate and behaviour of water-in-oil emulsions in ice / Dome Petroleum Limited. Buist, I. Dickins (D.F.) Associates Ltd. Dickins, D. Canadian Offshore Oil Spill Research Association [Sponsor]
Calgary, Alta. : Dome Petroleum Ltd., 1983.
2 microfiches : ill., figures, tables ; 11 x 15 cm.
(COOSRA project report, no. CS11)
Appendices.
References.
ACU

In 1982, in McKinley Bay, N.W.T., an experimental spill was conducted to investigate the cleanup of water-in-oil emulsions spilled under first year sea ice. The experiment involved the discharge of 192 litres of a 60% water-in-oil emulsion beneath the ice at each of two test sites and the discharge of 192 litres of straight crude oil at a third site for comparison. The ice was 165 cm thick at the time of the discharge. ... During the time that the oil and emulsion were frozen in the ice no significant changes in the physical or chemical properties of the oil were noted. In particular the emulsion did not separate back into its components of oil and water. By mid June, when the ice sheet was melting, the crude oil began to appear on melt pools on the ice surface. The oil was migrating up through open brine channels in the ice. This process continued and by July 8, one day prior to the breakup of the ice sheet, only some 9% of the original oil was left trapped in the ice. In comparison, significant quantities of emulsion did not appear on the ice surface until about July 5. This was because the high viscosity of the emulsion prevented it from flowing up the open brine channels. ... By July 8 the same small percentage of emulsion as oil was left trapped in the ice. In-situ burning of the emulsion floating on melt pools proved to be an effective technique for cleaning up the spills. About half the emulsion was removed by burning compared to that of 57% for the crude oil. The remainder of the surface oil and emulsion was either cleaned up using sorbent pads, evaporated or dissolved. ... The implications of the findings of this experiment for offshore oil spill countermeasures are [reported] .... (Au)

Q-121746
In situ hydrates under the Beaufort Sea shelf / Weaver, J.S. Stewart, J.M.
(The Roger J.E. Brown memorial volume : proceedings of the Fourth Canadian Permafrost Conference, Calgary, Alberta, March 2-6, 1981 / Edited by H.M. French. NRCC - Canada. National Research Council, no. 20124, 1982, p. 312-319, figures, table)
References.
ACU

The evidence for the existence of in situ hydrates within the Beaufort Sea shelf is reviewed and the associated implications for hydrocarbon development are briefly discussed. (Au)

Q-122157
Black gold redrilled : are the economics of Beaufort Sea oil getting better or worse? / Brooks, D.B.
(Northern perspectives, v. 11, no. 3, 1983, p. 1-4)
ACU, NFSMO

Five economic factors will play strong roles in determining whether Beaufort Sea oil is produced. More or less in order of increasing uncertainty, these are: on the demand side, questions of markets for oil and of the price of oil; on the supply side, questions of the volume of oil reserves in the Beaufort and of costs of production; and, finally, the policy regime within which production will take place. This review will cover only the first four factors. ... (Au)

Q-122165
Development in the Beaufort Sea region from EARP to regional planning / Fenge, T.
(Northern perspectives, v. 11, no. 3, 1983, p. 5-8)
ACU, NFSMO

... Ambitious development scenarios would industrialize the region in the 1980s and 90s. If the region's renewable resource and conservation values are to be maintained, broad land-use planning and management must be instituted well before production and transportation of hydrocarbons. The federal and territorial governments appear to be adopting policies favouring planning and management for development, but the implementation of such processes must be based within the region. ... Regionally based planning and management should become accountable to local residents through local and regional governments. Similarly, land claims by COPE, the Dene Nation, and the Council for Yukon Indians, all of which will have an impact on the region, have to be resolved. ... It is to be hoped that the Beaufort Sea EARP panel will seek this context during forthcoming public hearings and subsequently press for regionally based planning and management processes that serve local, regional, and national interests. (Au)

Q-122203
The planner's shortcut to Beaufort Sea answers / Baynes, R.
(Canadian petroleum, v. 24, no. 7, Aug. 1983, p. 12)
Review of document number 113069.
ACU, NFSMO

This article describes the scope of the publication "Arctic data compilation and appraisal, Volume one" by the Institute of Ocean Sciences of the federal Department of Fisheries and Oceans. It is a compilation of 127 oceanographic studies of the Beaufort Sea and Amundsen Gulf. The IOS is making the 279-page catalogue available in a series of published reports and through its computerized data storage and retrieval system. (ASTIS)

Q-123510
Compendium of written submissions to the Panel on the Dome, Gulf, & Esso response to the Panel's environmental impact statement deficiency statement / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea.
[Vancouver, B.C. : Beaufort Sea Environmental Assessment Panel], 1983.
140 p. : figures, tables ; 28 cm.
Cover title.
ACU

This compendium includes all submissions received as of August 15, 1983 from review participants and the Panel's technical specialists. Responses are by consultants, government departments and individuals. (ASTIS)

Q-123609
Assessing environmentally acceptable levels of metals in drilling products : the Beaufort Sea as a case study / Macdonald, R.W. Thomas, D.J.
(Issues of the 80's : Twelfth Annual Arctic Environmental Workshop held at Fairmont, British Columbia, May 8th-11th, 1983, p. 137-156, figure, tables)
References.
ACU, NFSMO

We have attempted to predict the probable effect resulting from the disposal of used drilling fluids which contain heavy metals from impure barite and chrome lignosulphonates. We have restricted ourselves to the Beaufort Sea and have approached the problem by trying to establish natural scales of time and space appropriate to the region. We have suggested how the initial guidelines might be set with due consideration of the general aims of regulations, (i) to prevent immediate toxicity; (ii) to prevent long-term irreversible damage; and (iii) to prevent exposure of humans to pollutants. Monitoring is required to enable revision of regulations should they fail in one of their objectives. (Au)

Q-123641
Beaufort Sea hydrocarbon exploration, a federal perspective / Canada. Northern Economic Planning Directorate. Economic Strategy Division.
Ottawa : DIAND, 1983.
i, 28 p. : figures ; 28 cm.
ISBN 0-662-12707-2
Available in French and in Inuktitut.
ACU

The following report should be viewed as a working document which provides a brief overview of hydrocarbon exploration undertaken in the Beaufort region, describes the environmental and socio-economic milieu, and cites federal accomplishments in introducing and administering environmental legislation and monitoring oil and gas activities. In addition, it sets forth some broad objectives and guidelines intended to facilitate hydrocarbon exploration, and to ensure that it can proceed in a socially and environmentally responsible manner. It should be noted that the guidelines are not intended to be binding; they simply suggest good practices that should be followed by anyone exploring for oil and natural gas in the Beaufort region and other parts of northern Canada. They are, in large measure, based on current industrial practices. ... (Au)

Q-123650
Observations and comments on the Beaufort Sea-Mackenzie Delta environmental impact statement, supplementary information 1983 / Canada. Northern Co-Ordination and Social Development Branch.
[Ottawa] : DIAND, 1983.
[28] leaves ; 28 cm.
Contents: [1.] Environmental issues. - [2.] Technical issues: Discussion paper no. 5 - Sharing shorebase facilities to support offshore activities in the Beaufort Sea, Discussion paper no. 6 - Ice wedges and pipelines. - [3.] Socio-economic issues.
ACU

These pages contain general comments and observations prepared by departmental staff on the Beaufort Sea EIS deficiency materials. (ASTIS)

Q-124150
Tertiary sedimentation in the southern Beaufort Sea / Willumsen, P.S. Cote, R.P.
(Studies in continental margin geology / Edited by J.S. Watkins and C.L. Drake. Tulsa, Okla. : American Association of Petroleum Geologists, 1982. Memoir - American Association of Petroleum Geologists, no. 34, p. 283-293, figures (1 folded))
References.
ACU

Five Tertiary deltaic cycles are identified in the Mackenzie Basin. These cycles added approximately 35,000 sq. mi. to the continental shelf, and deposited more than 100,000 cu mi of sediment. The five deltaic cycles followed a distinct counter-clockwise progradational pattern into the Mackenzie Basin with sedimentation beginning in the southwestern part of the basin and shifting northeast. The area distribution of the three major depositional facies for each of the five deltaic cycles, namely the delta plain, the delta front, and the prodelta facies, is outlined. The recognition of a turbiditic subfacies within the prodelta sediments is of major importance and provides new and deeper prospects for petroleum exploration in the Mackenzie Basin. (Au)

Q-124184
Frontier oil and gas : Beaufort Sea moves closer to 1986 production / Bernard, W.F.
Ottawa : Canadian National Committee, World Energy Conference, [1982]?
(Energy and Industrial Development in Canada : proceedings of the Sixth Canadian National Energy Forum, Ottawa, 9-10 November, 1981, p. 88-91)
ACU

In particular I will discuss the Beaufort Sea's potential to become a source of crude oil for Canada by 1986. Then to demonstrate briefly to you that through its development, significant industrial activity, arctic technology, and employment benefits may be derived for all of Canada. [The Kopanoar, Koakoak and Tarsiut discoveries are described, production drilling technology, production feasibility and industrial benefits]. (Au)

Q-124192
Radar remote sensing in support of arctic oil exploitation / Lowry, R.T. Mercer, J.B. Gray, A.L.
(Remote sensing for exploration geology : proceedings of the International Symposium on Remote Sensing of Environment, 2nd Thematic Conference, Fort Worth, Tex., 6-10 December, 1982, v. 1, p. 237-251, figures)
References.
ACU, NFSMO

... The paper includes a review of the different ice hazards and where they are found; the different radar technologies under active use, including SLAR, SAR and scatterometers; the associated technologies of real time processors, downlinks, and image display systems, currently or soon to be available. As well, examples of the use of radar imagery for direct ship support and for ice dynamics modelling are included. ... For the restrictions of this paper, ... the scope will be limited to a discussion of the activities associated with DOME/CANMAR's (Canadian Marine Drilling Limited) operation in the Beaufort. In practice this is not a limit, as the activity in the Beaufort has promoted radar remote sensing in terms of both technology and technique. ... (Au)

Q-126152
A Polar Gas pipeline for the Canadian Arctic / Kaustinen, O.M.
(Arctic energy resources : proceedings of the Comite Arctique International Conference on Arctic Energy Resources, held at the Veritas Centre, Oslo, Norway, September 22-24, 1982 / Edited by L. Rey. - Amsterdam : Elsevier Science Publishers B.V.; New York : Elsevier Science Publishing Co., 1983, p. 217-226, figures)
(Cold regions science and technology, v. 7, 1983, p. 217-226, figures)
ACU, NFSMO

The Polar Gas Project was established in 1972 to determine the best means of moving frontier natural gas reserves from Canada's High Arctic to southern markets. ... In order to connect the natural gas reserves in the Canadian Arctic Islands, Polar Gas will have to install pipelines in two major marine crossings in the Arctic waters in the initial construction phase of the project. The two marine crossings are located at either end of Victoria Island - at Dolphin and Union Strait and at M'Clure Strait. Dolphin and Union Strait between Victoria Island and the Canadian mainland is about 19 miles wide and has a maximum depth of 400 feet. M'Clure Strait is between Victoria Island and Melville Island and is 76 miles wide with a maximum depth of 1650 feet. Different methods of construction are proposed for the two channels and these methods are described in the paper as well as outlining the technique for protecting the pipelines from potential ice scour. Polar Gas and its consultants have designed a full scale demonstration of the one-atmosphere welding technique closely paralleling the underwater environment faced at M'Clure Strait to demonstrate that the tie-ins which would be necessary for the actual construction of the marine crossings could be satisfactorily undertaken. The equipment required for the demonstration is outlined in the paper and the general procedures are described. ... (Au)

Q-126241
Beaufort Sea energy production and environmental protection / Hoos, R.A.W.
(Arctic energy resources : proceedings of the Comite Arctique International Conference on Arctic Energy Resources, held at the Veritas Centre, Oslo, Norway, September 22-24, 1982 /

Edited by L. Rey. - Amsterdam : Elsevier Science Publishers B.V.; New York : Elsevier Science Publishing Co., 1983, p. 303-312, figures)
(Cold regions science and technology, v. 7, 1983, p. 303-312, figures)
ACU, NFSMO

Exploration permits in the Beaufort Sea-Mackenzie Delta Region were issued to the petroleum industry by the Federal Government beginning in 1965. The purpose of these permits was to encourage exploration for hydrocarbons in this region. ... Permanent islands built of sand, concrete and steel in waters up to 200 feet deep will provide the offshore platforms for producing and processing the hydrocarbons. Initially oil will be of primary interest, with the plan being to transport it via Arctic icebreaker tankers and/or pipeline(s) to markets. As the demand for gas develops, it will also be transported to market, most likely by pipeline. A significant shorebase infrastructure complete with quarries, roads, harbours, airports, maintenance facilities and other services will be required to support the impending development. All of the foregoing activities must be carried out in an environmentally and socially responsible manner. The proposed developments are presently being examined under the auspices of Canada's Federal Environmental Assessment and Review Process. This process is assisting by involving the public in the early identification of the major environmental and socio-economic concerns respecting proposed developments. The outcome of this effort, along with more specific reviews to be conducted by the appropriate regulatory agencies, should ensure that the final developments which take place will conform to the high environmental protection and socio-economic standards expected by all Canadians and the international community. (Au)

Q-126438
Improving offshore structures promote arctic development / Bruce, J.C.
(Petroleum engineer, v. 55, no. 6, 1983, p. 44, 46, 48, 52, 54 : ill., figures)
ACU, NFSMO

... Five structures will have been deployed in the Beaufort Sea by 1984, and much has been learned from these on design methods for arctic structures. The most intangible factor still is the ability to obtain satisfactory ice loading criteria; the new structures should go some way to providing this information. It is hoped that this will lead to rationalization and structural savings in the next generation of arctic platforms. Attention is turning to production platforms which will have to be designed for longer return-period ice loads. It is here that submerged berms may be important in grounding out major ice features, otherwise the structure would have to be capable, on its own, of dissipating the entire kinetic energy from major floes. ... Artificial sand or gravel islands have been used for hydrocarbon exploration in the Canadian Beaufort Sea since 1972 and, more recently, in the nearshore areas of the Alaskan Beaufort. ... (Au)

Q-126675
Development in dredging techniques for arctic exploration and production facilities / Dikken, J.J.
(Proceeding : Offshore Goteborg 83, International Conference on Offshore and Marine Technology, Goteborg, Sweden, March 1-4, 1983. - Goteborg, Sweden : Swedish Trade Fair Foundation, [1983], Session A2a, [15] p., ill. figures)
References.
NFSMO

In the search for hydrocarbons in the offshore Arctic areas, use has been made of a variety of artificial islands. A number of islands have been built in shallow water (-10 m) with a variety of construction materials and techniques. As exploration proceeds into deeper water, new dredging equipment and techniques have been developed. This paper reviews the dredging techniques and their capabilities in the Canadian and Alaskan Beaufort Sea. (NFSMO)

Q-126853
Ice effects on offshore arctic structures, an overview / Bruce, J.C. Allyn, N.F.B.
(Proceedings : Offshore Goteborg 83, International Conference on Offshore and Marine Technology, Goteborg, Sweden, March 1-4, 1983. - Goteborg, Sweden : Swedish Trade Fair Foundation, [1983], Session A3, [13] p., figures)
References.
NFSMO

The development of arctic offshore structures has progressed gradually as hydrocarbon exploration has moved into deeper waters where artificial sand or gravel exploration islands no longer are economical. In the deeper waters, the ice loading becomes more severe and, with little available prototype data, the methods of estimating this loading still involve considerable subjective judgement. This paper discusses the ice features which dominate the North American arctic, the effects of the ice loading on the structures, the available methods of estimating this loading, and the structural solutions which have evolved to cope with the severe environmental conditions. In particular, the paper highlights a new series of computer programs which has been developed by the authors' group which enables the designer to better understand the build-up of ice forces on any particular structure. With this understanding, the engineer can tailor the design early in the concept stage to minimize the incident loading. (Au)

Q-127140
A caisson to tap the riches of Kadluk.
(The engineering times, v. 17, no. 2, Feb. 21, 1983, p. 5, ill.)
NFSMO

... The caisson was built in a Japanese shipyard using Canadian design and Canadian-made steel. ... the sheer size of the structure is awesome. Each section of the ring is 39 feet high, 157 feet long, and 43 feet thick at the base. Angled deflectors rise another 15 feet from the crown to fend off the ice and waves of the Beaufort Sea. When filled with dredged sand, the hole in the doughnut - 328 feet in ... diameter - will support a drill rig and a three-storey crew camp. Its sophisticated instrumentation is as impressive as its size. ... The caisson was tested in Tuk harbor in November last year, then split into two half-sections and anchored for the winter. This spring crews will attach wave deflectors and add finishing touches to the instrumentation package. In July, the two sections will be towed to Tuft Point, just outside Tuk harbor, where they will be assembled and hauled to the Kadluk location. A new compact drill rig will be moved to the caisson island, and next November, another milestone hole in Beaufort history will be spudded. (Au)

Q-127256
Kulluk - an arctic exploratory drilling unit / Gaida, K.P. Barnes, J.R. Wright, B.D.
(Fifteenth Annual Offshore Technology Conference 1983, proceedings. - Dallas, Tex. : Offshore Technology Conference, 1983, v. 1, p.

337-346, figures, table)
(OTC paper, 4481)
References.
NFSMO

This paper describes the design and construction phase of BeauDril Limited's Arctic Drilling Unit, Kulluk (Inuit name for "Thunder"). This floating unit is designed to operate in water depths from 24 to 55 meters and incorporates a 24-faceted conical hull which has been ice strengthened to the American Bureau of Shipping 1AA Requirements and the Canadian Arctic Shipping Pollution Prevention Act, Arctic Class IV classification. The double hull has an outer diameter of 81 meters at the main deck and is in the form of an inverted cone which causes the ice to break downward and away from the vessel, protecting its drilling riser system and the mooring lines. The unit is not self- propelled but will be towed to each drill site and is moored on-location by twelve radially deployed anchor lines, each having a diameter of 3 1/2 inches. With this unit, Gulf eventually anticipates operation in the Beaufort Sea to be extended significantly. The Kulluk is presently under construction in Japan with a scheduled delivery date of April 1, 1983. (Au)

Q-127272
Design and construction of Tarsiut Island in the Canadian Beaufort Sea / Fitzpatrick, J. Stenning, D.G.
(Fifteenth Annual Offshore Technology Conference 1983, proceedings. - Dallas, Tex. : Offshore Technology Conference, 1983, v. 2, p. 51-60, figures)
(OTC paper, 4517)
NFSMO

This paper outlines the principal factors which influenced the design and construction of Tarsiut Island in the Canadian Beaufort Sea. The intent of the paper is to provide an insight into the rationale behind the design and construction of the island. (Au)

Q-127280
Tarsiut winter alert monitoring / Wright, B.D. Weaver, J.S.
(Fifteenth Annual Offshore Technology Conference 1983, proceedings. - Dallas, Tex. : Offshore Technology Conference, 1983, v. 2, p. 61-66, figures)
(OTC paper, 4518)
References.
NFSMO

Tarsiut Island is the first caisson retained island that has been built for drilling operations in the Arctic Offshore. Because of its novelty, a real time monitoring program involving the predicted and observed performance of the island under ice loading was established to ensure safe and efficient drilling operations and to satisfy government requirements. To accomplish this program, an extensive state of the art instrumentation, data acquisition and monitoring system was developed and utilized to collect ice action and island response information. The data was used in real time to assess island stability and provide an alert warning to drilling personnel. The alert levels were related to drilling activities to ensure the integrity of the operation. This paper describes the methodology, procedures and experiences associated with the Tarsiut winter monitoring program. (Au)

Q-127299
The Tarsiut monitoring program / Weaver, J.S. Berzins, W.
(Fifteenth Annual Offshore Technology Conference 1983, proceedings. - Dallas, Tex. : Offshore Technology Conference, 1983, v. 2, p. 67-74, figures)
(OTC paper, 4519)
References.
NFSMO

This paper presents a description of the monitoring programs used during construction of Tarsiut Island and during the drilling of the Tarsiut N-44 exploration well. The objectives of this program were threefold: 1. To ensure that the island was constructed according to acceptable design standards. 2. To ensure that the island performed satisfactorily under the imposed environmental loads throughout the drilling of the Tarsiut N-44 exploration well. 3. To collect data that could be used to streamline the design of future islands. A description of the monitoring strategy and instrumentation is presented. Typical results are reviewed and recommendations for future programs are given. (Au)

Q-127302
Experience with alert and evacuation, Tarsiut Island, summer 1982 / Townsend, D.L. Stewart, H.R. Myers, R.M.
(Fifteenth Annual Offshore Technology Conference 1983, proceedings. - Dallas, Tex. : Offshore Technology Conference, 1983, v. 2, p. 75-82, figures, table)
(OTC paper, 4521)
(Technical paper - Institute of Petroleum, IP 83-011)
References.
NFSMO, ACU

The original concept for Tarsiut Island considered that drilling operations in the Beaufort Sea would be done under ice covered conditions. Extension of drilling to summer open water conditions necessitated two major changes. Upgrading construction would be required to reduce the potential for scour at the base of the concrete caissons, and to increase freeboard protection from waves and spray. The Island Alert and Evacuation Manual also had to be changed. Depending upon the position of the permanent ice pack, the fetch for waves can change drastically. Weather changes are sudden. The principle changes in the alert system had to recognize that local direct decisions as well as short term forecasts would be needed. Warning was needed which recognized the influence of high winds upon helicopter operations. During the summer of 1982, two successful total evacuations of the Island were necessary due to the forecasted and observed weather conditions. There was minimal damage and no personal injury. The paper indicates the role of the Island Design Engineer in the co-ordination of monitoring activities, the various alert levels which were established for summer conditions, and summarizes the procedures carried out for the two successful operations. (Au)

Q-127337
Strength of offshore gravel islands to resist ice loads / Kotras, T.V. Arnold, C.L. Bergman, K.M.
(Fifteenth Annual Offshore Technology Conference 1983, proceedings. - Dallas, Tex. : Offshore Technology Conference, 1983, v. 2, p. 317-324, figures, tables)
(OTC paper, 4549)
References.
NFSMO

One of the prime concerns in designing offshore gravel islands in ice-covered waters such as in the U.S. and Canadian Beaufort Seas is the ability of the island to resist the imposed design ice loads. In presenting this paper, the goal is to describe a methodology to aid in the preliminary assessment of the overall strength of a gravel island to resist a design ice load for a set of prescribed design and environmental parameters. Conversely, the described methodology can be used to aid in developing a preliminary island design in terms of its size, height and geometry to ensure the island has sufficient strength to resist the design ice loads. More specifically, the purpose of this paper is twofold: (1) to describe a methodology for establishing the strength of offshore gravel islands to resist imposed ice design loads; and (2) to use this methodology to illustrate how the performance of gravel islands to resist the imposed ice loads varies with the major design and environmental parameters. In summary the results of the analysis presented in this paper indicate that, from the standpoint of resisting ice loads, gravel islands will continue to be technically feasible offshore drilling platforms for both exploration and production in the U.S. and Canadian Beaufort Seas as the oil industry moves into deeper and more harsh areas. (Au)

Q-127388
Caisson retained island for Canadian Beaufort Sea - geotechnical design and construction considerations / Mancini, C.V. Dowse, B.E.W. Chevallier, J.-M.
(Fifteenth Annual Offshore Technology Conference 1983, proceedings. - Dallas, Tex. : Offshore Technology Conference, 1983, v. 3, p. 17-22, figures, table)
(OTC paper, 4581)
References.
NFSMO

This paper reviews the development of the caisson retained island (CRI) concept for exploratory drilling in the Canadian Beaufort Sea and outlines the geotechnical design considerations for CRI construction. ... During 1982 the first Esso caisson was fabricated in Japan and transported to Tuktoyaktuk in the Beaufort Sea where it currently awaits deployment in 1983. As the caisson arrived in the Beaufort, construction of the CRI berm was nearing completion at the Kadluk location. In geotechnical terms, the CRI design must ensure adequacy of the berm and the total structure. The major considerations for design include: the evaluation of stability under gravity and ice loads; estimates of deformation due to seabed and berm settlement; and the effect of filling rate for the CRI core on the differential water head relative to sea level. (Au)

Q-127396
Wave interaction with Tarsiut Island / Myers, R.M. Dunwoody, A.B. Kirby, J.A.
(Fifteenth Annual Offshore Technology Conference 1983, proceedings. - Dallas, Tex. : Offshore Technology Conference, 1983, v. 3, p. 23-26, figures, table)
(OTC paper, 4582)
References.
NFSMO

Waves, erosion, spray, and storm surge were recorded at Tarsiut Island during the open water season of 1982. This paper analyzes data collected and compares findings of the program to assumptions made during the design of Tarsiut Island. Waves experienced at Tarsiut in 1982 were more severe than normal and more severe than were used in design of the berm. Wave interaction with the berm and caisson was confirmed to agree well with theory and design except for elevation +10 m where horizontal forces were greater than theory would indicate. Tarsiut berm was identified as being stable and subject to considerably less erosion than was assumed in design. Wave spray data was collected by monitoring infilling of 45 gallon drums during wave spray events. Intensity of spray on the island surface was found to be as high as 102 cm/hr but this rate was not typical. Spray intensity was found to reduce with distance in from the caisson wall by a negative exponential relationship. Storm surge was identified to exist at Tarsiut and a maximum of 0.2 m positive and 0.2 m negative surge were measured. Indications are that surge is related to storm direction as well as wind speed. (Au)

Q-127400
Site investigation and in-situ testing techniques in arctic seabed sediments / Burgess, N.C. Hughes, J.M.O. Innes, R. Gleadowe, J.
(Fifteenth Annual Offshore Technology Conference 1983, proceedings. - Dallas, Tex. : Offshore Technology Conference, 1983, v. 3, p. 27-34, figures, tables)
(OTC paper, 4583)
References.
NFSMO

This paper describes the design and development of a motion-compensated geotechnical drill rig that was tailored specifically for site investigation work in the Canadian Beaufort Sea. Fieldwork was undertaken during the summers of 1981 and 1982 at potential sites for caisson-retained exploration islands (drilling platforms). The approach to site investigation is described, together with the results of laboratory and in situ testing. The drill rig proved to be reliable and the unique motion compensation system permitted down-hole work to be done in a manner that is comparable to onshore methods. The value of using a variety of in situ tools is apparent when on-site decision making is necessary and the test results prove the inadequacy, in certain circumstances, of reliance on laboratory test data. The flat-dilatometer is a relatively new in situ instrument and the results of its first-time application in the Beaufort are encouraging. (Au)

Q-127779
Hydrocarbon extraction in arctic frontiers / Watt, B.J.
(Behaviour of off-shore structures : proceedings of the third International Conference / Edited by C. Chryssostomidis and J.J. Connor. V. 1, p. 71-91, figures, tables)
References.
NFSMO

This paper provides a broad overview of offshore operations in ice-infested waters. The focus is on the Beaufort Sea with lesser emphasis on the Bering Sea and Davis Strait regions. ... Most of the expenditure to date has been on exploration programs. The complicated nature of sea ice is discussed, and the methodologies for predicting ice loads on fixed structures are reviewed. The design of a variety of exploration and production options is then discussed, including assessments of the development status. Systems considered range from ice platforms through gravel islands, caisson islands, gravity cones and steel towers to moored semisubmersibles. The importance of factors such as wave runup and overtopping and ice rideup is stressed, in addition to the question of ice loads. The environmental constraints on tanker or pipeline transportation of crude are briefly reviewed in the context of Alaskan and Canadian development programs. It is concluded that arctic offshore engineering is rapidly advancing and capable of meeting the challenges of the region. The environment is very different from that in the North Sea or Gulf of Mexico, and the technology employed can not be based on a simple extrapolation or previous experience. (Au)

Q-129321
Oil from a steel doughnut / Brown, S.
(The lamp, v. 65, no. 2, Summer 1983, p. 26-29, ill.)
NFSMO

An octagon-shaped steel caisson, larger than a football field and designed to withstand crushing ice floes, has been developed by Esso Resources Canada for year-round exploration drilling in the Beaufort Sea. (Au)

Q-130800
The operation of trailing hopper suction dredges in the Canadian Beaufort Sea / Brakel, J.
(Proceedings of the Second International Offshore Mechanics and Arctic Engineering Symposium / Edited by J.S. Chung and V.J. Lunardini. - New York : American Society of Mechanical Engineers, 1983, p. 666-672, figures)
References.
NFSMO

A considerable knowledge about hopper dredging and island building has been acquired in the Arctic after two seasons of dredging in the Canadian Beaufort Sea. Prior to mobilization, the dredges were adapted to the environmental arctic conditions. Some conversion took place in the Arctic in early spring. A special hook-up system was developed to make a connection between hopper dredge and floating hose in open water. An ice strengthened trailer can lengthen the working season. Increase in yearly output and cost is addressed. (Au)

Q-132454
Long-term ecological consequences in tundra environments of the CANOL Crude Oil Pipeline Project, N.W.T., 1942-1945 / Kershaw, G.P.
Edmonton, Alta. : Dept. of Geography, University of Alberta, 1983.
xvi, 332 p. : ill., figures, tables ; 28 cm.
Thesis (Ph.D) - University of Alberta, Edmonton, Alta., 1983.
Appendices.
References.
ACU

The CANOL Pipeline Project, in its abandoned state, provides an example of how a major, large scale development has altered the local environment in this northern setting. After approximately 3.5 decades, the disturbances persist in an abandoned state and there has been no attempt to rehabilitate them. The CANOL Project can therefore be used as a case study of how a number of man-induced disturbances will affect northern environments over a long time frame. ... CANOL disturbances encompass an array of examples of environmental alterations that will be common to most contemporary and future northern developments. An holoceonotic approach has bean adopted for this study. This was done in order to gain an understanding of how these long-term disturbances have affected a number of key ecosystem components. ... The selection and measurement of only certain key soil, vegetation and wildlife characteristics of the ecosystem was completed. The framework for this study was the major plant communities that compose the various study area ecosystems. ... Only the Northwest Territories sections of the CANOL No. 1 pipeline, road and associated telephone system were considered in this study. ... The main objective of this research was to determine how major components of the ecosystems in the study area have been affected by the man-induced disturbances initiated by the CANOL Project. With this objective as a goal, the following four purposes were outlined: 1. Describe the circumstances and nature of the disturbances at their initiation in 1942-1945. 2. Determine the current ecological characteristics of CANOL disturbances after 32-37 years. 3. Compare the disturbed areas to control or reference areas that were undisturbed in order to determine the long-term ecological consequences of the initial disturbances. 4. Discuss the implications that the results of this study will have for future northern developments. (Au)

Q-132519
Detection of oil under ice, a joint ESSO/EPS project / Goodman, R.H. Fingas, M.F.
(Spill technology newsletter, v. 7, no. 6, Nov.-Dec. 1982, p. 150-158, figures, table)
References.
ACU

Studies conducted as part of the Beaufort Sea Project (NORCOR, 1975) have demonstrated that oil deposited under ice would become encapsulated in the ice for significant periods of time, moving with the ice and rising to the surface of spring melt pools. Experiments have shown that it was only necessary to monitor the ice in order to track the oil. A system of micro and macro buoys recommended by an early AMOP program, has been developed (McGonigal and Wright, 1977; Roddis, 1980) and is routinely used for ice motion monitoring. However, oiled ice could become separated from the buoys if the ice floes should break or diverge, as might occur in the shear zone. It's relocation would require the capability to detect the presence of oil in or under the ice. Such a system would also enable the routine monitoring of subsea under-ice pipelines and the detection of pollution near northern loading terminals and production platforms. The difficulties of detecting pipeline leaks under ice were identified as a concern of the Norman Wells Environmental Assessment Review Panel. This paper presents a background and overview of the limitation of oil-under-ice detection systems and indicates possible improvements. ... (Au)

Q-132535
Industry, government and the environment : hydrocarbons in the Canadian High Arctic / Boston, N.E.J. White, L.C.
(Petromar 80 : petroleum and the marine environment / EUROCEAN. - London : Graham & Trotman Ltd., 1981, p. 201-224, figures, tables)
References.
ACU

This paper describes the Canadian High Arctic in terms of regions, frontier basins. It outlines the growth of legislation and regulatory agencies for hydrocarbon exploration. Diagrams are included which indicate the environmental assessment process for major development projects. (ASTIS)

Q-132586
The development of countermeasures for oil spills in Canadian Arctic waters / Ross, S.L.
(Petromar 80 : petroleum and the marine environment / EUROCEAN. - London : Graham & Trotman Ltd., 1981, p. 377-399, figure)
References.
ACU

The paper describes the Arctic Marine Oilspill Program and the extensive scientific work that has taken place in three areas related to the fate and behaviour of oil spills in Arctic waters: oil on open water, oil-ice interactions, and deep water blowouts. The countermeasures discussed include in-situ burning, incinerators, dispersants, skimmers and booms. The development of a remote sensing package as an AMOP project is described. A shoreline cleanup and protection manual for the Beaufort Sea is described. The status of experimental oilspill studies is given. (ASTIS)

Q-132675
Issungnak - Esso Resources' largest artificial island / Williams, C.T.
(Conference on Canadian Offshore Drilling & Downhole Technology (CODD), September 14-16, 1981, Hotel MacDonald, Edmonton, Alberta. - Calgary, Alta. : CODD, 1981, [p. 6-8], ill., map)
NFSMO

In the Beaufort Area, Issungnak Island is located just north of the 70 degrees latitude. Issungnak was the fifteenth and largest artificial drilling island built by Esso Resources to date (Sept. 1981). ... This paper will focus on three main topics. First of all, we will look at the feasibility of artificial islands for drilling. Secondly, we will discuss Issungnak O-61, the first well drilled. We are going to look at: ... island construction [and the] ... drilling program. Finally, we will focus on the second well drilled, Issungnak 2 O-61. We will look at the maintenance program for the island and then outline the Drilling Program. The factors considered in the economic feasibility of artificial islands are the acreage water depth, a working season which begins in mid-July and ends in mid-October, the safety of the island, the capital investment required, and the island technology. The technical feasibility of artificial islands are dependent upon sufficient borrow material, dredging capability, and the environment which entails storms and the weather conditions. Taking all of these points into consideration, it was decided by Esso Resources to pursue artificial islands for drilling wells in the Beaufort. ... (Au)

Q-132683
A geotechnical approach to the solution of borehole stability problems in Beaufort Sea operations / Wilkie, D.
(Conference on Canadian Offshore Drilling & Downhole Technology (CODD), September 14-16, 1981, Hotel MacDonald, Edmonton, Alberta. - Calgary, Alta. : CODD, 1981, [p. 9-11], figure, map)
NFSMO

... In an attempt to define the cause of these tight boreholes, several sidewall cores were taken in 1980 on a well where significant lost time had been incurred due to pipe sticking and reaming. These cores were first examined visually, and then were further examined to identify clay types, mineralogy and grain size distribution. In addition, a series of geotechnical tests were carried out to obtain water content, liquid and plastic limits and shear strength. These tests provided useful information into the potential cause of borehole stability problems and thus implied suitable solutions to these problems. ... (Au)

Q-132691
Technical evolution of drillsite survey techniques used by Dome Petroleum in the Beaufort Sea from 1977-1980 / Pui, N.
(Conference on Canadian Offshore Drilling & Downhole Technology (CODD), September 14-16, 1981, Hotel MacDonald, Edmonton, Alberta. - Calgary, Alta. : CODD, 1981, [p. 12-13])
NFSMO

This article briefly discusses the need and the methodology of drillsite survey, the general site survey program and the output of each component of the program. It presents an overview on high resolution shallow seismic and deep geotechnical coring to show the general progress and their contribution to the drilling of an offshore well. ... (Au)

Q-132705
Design and construction of the CBIR Rig I for Tarsuit / Leblanc, L.
(Conference on Canadian Offshore Drilling & Downhole Technology (CODD), September 14-16, 1981, Hotel MacDonald, Edmonton, Alberta. - Calgary, Alta. : CODD, 1981, [p. 14-17])
NFSMO

... Dome Petroleum, in the conceptual stages of its Beaufort production design, planned an artificial island which is dredged to six metres below the water line and brought to surface using steel reinforced concrete caissons. The caissons are then filled with dredged material. The first of such islands is under construction near the Tarsuit A-25 discovery well. Dome contracted Canmar to design and construct the drill system for this island. Based on six years operational experience in the Beaufort, design parameters for the drilling unit were established. [This paper describes the design and construction of the rig]. ... (Au)

Q-132780
Determination of pipeline trench depths in the Beaufort Sea / Pilkington, G.R. Marcellus, R.W.
(Conference on Canadian Offshore Drilling & Downhole Technology (CODD), September 14-16, 1981, Hotel MacDonald, Edmonton, Alberta. - Calgary, Alta. : CODD, 1981, [p. 62-67], figures)
NFSMO

This paper discusses methods of determining pipeline trench depths for the South Eastern Beaufort Sea. For shallow water (less than 20 m) interpretation of shallow seismic records is recommended as these can indicate the deepest score that has occurred over the past few thousand years. In deeper water, a method of combining ice keel and score statistics is used. Pipeline depths of about 2 m in shallow water, 4 to 6 m in 20 to 40 m of water and no burial beyond 50 m depths are indicated by preliminary studies using these techniques. (Au)

Q-132845
Geotechnical design considerations for the Gulf Oil Mobile Arctic Caisson, Beaufort Sea / McCreath, D.R. Hodge, W.E. Harrington, A.G.
(Second Canadian Conference on Marine Geotechnical Engineering, Halifax, Nova Scotia, June 1982 [preprints]. - Ottawa : National Research Council of Canada, 1982, 11 p., figures)
References.
NFSMO

... Several of the major oil companies have investigated various types of mobile drilling platforms. The Mobile Arctic Caisson (MAC) system now under construction by Gulf Canada Resources consists of a steel annular box containing flotation ballast tanks and with a simply supported steel deck .... This paper describes the geotechnical design considerations for the mobile arctic caisson]. ... (Au)

Q-132950
Design of steel structures for the Canadian offshore frontiers / Watt, B.J.
[S.l. : s.n., 1982?].
48 p. : figures ; 28 cm.
Paper presented at the Canadian Structural Engineering Conference, 1982.
References.
NFSMO

The paper describes the steel structure types which are most likely to be used for exploration and production on the Canadian Outer Continental Shelf. The focus will be on steel structures in the Beaufort Sea and off the coasts of Newfoundland and Labrador. ... A brief review of conventional steel platform types such as jackups, semi-submersibles, piled jackets and towers and steel gravity platforms will be presented. The applicability of these traditional concepts to the Canadian frontier areas will be discussed. New platform concepts for dealing with sea ice regimes will be presented and discussed. These will include the ice resistant semi-submersible, floating and fixed cone structures, and caisson retained islands. Global and local design considerations will be described. The relevance of existing steel structure design codes will be reviewed in the context of the design process. Fabrication, transport, and installation considerations will be introduced insofar as these affect the steel structure design. A brief commentary on steel quality will be included in this section. Finally, the author will discuss the impact of the development of these new structure types on the technology for designing steel structures both onshore and offshore. (Au)

Q-134171
Information documentation for the environmental assessment review process, Beaufort Sea hydrocarbon production proposal : index to the public file of Beaufort Sea Environmental Assessment Panel material (annotated) / MacDonald, E.M. Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea [Sponsor].
[Hull, Que. : FEAR Office, 1983].
1 v. (various pagings) ; 30 X 29 cm.
Material in 3-ring binder.
Includes Update for Information Management Document I - Index to Public File of Beaufort Sea Environmental Assessment Panel material, dated 83-12-23.
ACU

The Beaufort Sea Environmental Assessment Panel established a public file of Panel material at three locations: the Beaufort Sea Panel Office, Inuvik; the Federal Environmental Assessment Review Office, Vancouver; and the Federal Environmental Assessment Review Office, Ottawa. This public file includes copies of all correspondence to or by the Panel, all documents produced by or for the Panel, and all documents submitted to the Panel. ... Updates to the Index are circulated approximately monthly. (Au)

Q-135704
Gulf Canada moves ahead with unique drilling system / Moore, S.D.
(Petroleum engineer, v. 54, no. 15, Dec. 1982, p. 40, 42, 44, figures, tables)
NFSMO, ACU

This article describes Gulf's conical drilling unit for use in the Beaufort Sea. (NFSMO)

Q-135879
New drilling island concepts for Beaufort Sea.
(Ocean industry, v. 17, no. 6, June 1983, p. 32-33, ill.)
NFSMO

[This article describes caisson-retained artificial islands, including Tarsiut N-44.] Dome is using caisson-retained units for water depths beyond 20 m; Gulf is building mobile islands for use beginning next year. (Au)

Q-135887
Constructing artificial islands in Canada's Beaufort Sea.
(Ocean industry, v. 17, no. 6, June 1983, p. 28-31, ill.)
NFSMO

Since 1972, ESSO Resources Canada has constructed 17 artificial exploration islands in The Beaufort Sea. The article taken from an ESSO Resources Canada internal report describes the exploration activity and the engineering problems encountered in building artificial islands. (NFSMO)

Q-136018
Canadian Arctic energy resources - a development and transportation strategy / Lee, J.E.
(Proceedings : Northern Transportation Conference : the challenge of the eighties, Whitehorse, Yukon, October 5-7, 1982. - [Ottawa : Transport Canada, 1983?], p. 13-19, figures)
ACU

The author discusses Esso's western Arctic resource development and transportation strategy by first examining the current Canadian energy supply and demand outlook and resource base. (ASTIS)

Q-136140
Beaufort Sea transportation : tankers and pipelines / Churcher, A. Pardy, B.
(Proceedings : Northern Transportation Conference : the challenge of the eighties, Whitehorse, Yukon, October 5-7, 1982. - [Ottawa : Transport Canada, 1983?], p. 108-110, figure)
ACU

... This paper reviews the status of performance, safety and cost predictions for the primary transportation options and how the differences apparent in applying the transportation options to offshore field development have caused Dome, Canada's foremost explorer for hydrocarbons in the Arctic, to intensify R&D programmes on the movement of oil by icebreaking tankers. The paper concludes that both pipelines and tankers will serve important roles in the exploitation of Canada's rich oil and gas resources in the Arctic. Demonstration projects for both these transportation modes are essential now to verify cost and performance predictions and thereby improve confidence in the proper selection and use of pipelines and tankers for the many oil and gas projects in the future in Canada's Arctic. (Au)

Q-136484
Drilling the Beaufort.
(The orange disc, Winter 1981, p. 1-8, ill.)
NFSMO

This article describes Gulf Canada Resources drilling system for the Beaufort Sea. (NFSMO)

Q-136492
The Beaufort Sea drilling system / Zwarun, S.
(Commentator, v. 3, Dec. 1981, p. 20-23, ill.)
NFSMO

Financed by [Gulf Canada's] ... largest single capital investment, the system will include two ice breakers, two supply vessels and two drilling units - one a caisson, the other conical. In addition, the Company will be developing trained technical and operations people, setting up a northern base and offering employment to native workers. Design of the system is now finished, construction is underway, with completion and installation scheduled for summer, 1983. (Au)

Q-136611
[Specifications of Gulf Canada Resources conical drilling unit, supply vessels and mobile arctic caisson] / Gulf Canada Resources Inc.
[S.l. : s.n.], 1982.
8 p. : ill. ; 28 cm.
NFSMO

The supply vessels for which specifications are provided here are designed to supply bulk materials and equipment between the supply base and drilling systems as well as setting or anchoring drilling systems and for ice management. The mobile arctic caisson described is to drill year-round if necessary in the shallow parts of the Beaufort Sea. The conical drilling unit for which specifications are given is to drill in deeper waters of the Beaufort Sea for up to 6 to 8 months. (ASTIS)

Q-136654
North America Arctic : operator interest keen in U.S. Beaufort Sea / Williams, B.
(Oil and gas journal, v. 80, no. 28, July 12, 1982, p. 71-86, 88-90, 92-94, 96, 99-100, ill.)
NFSMO, ACU

... [This report] covers exploration/development action and plans in the Arctic frontiers of the U.S. and Canada--the prime North American hope for vast new additions to reserves. ... [Also included is] ... How operators plan to delay the inevitable decline and maintain production at giant Prudhoe Bay field. (Au)

Q-136670
Oil tanker turned drilling caisson brings revolutionary concept to Beaufort Sea / Cottrill, A.
(Offshore engineer, 1982 [8] Aug., p. 17, ill.)
NFSMO

Dome's single steel drilling caisson (ssdc) is a self contained unit formed out of two-thirds of an oil Tanker. The Caisson is being towed from Japan for placement on an underwater dredged berm in the Beaufort Sea. (NFSMO)

Q-136689
Beaufort pioneers pile on pressure as production looms / Cottrill, A.
(Offshore engineer, 1983 [1] Jan., p. 29-33, ill.)
NFSMO, ACU

This article presents a review of oil and gas activities in Canada's and Alaska's Beaufort Sea in 1982 with projections for future development. (NFSMO)

Q-136697
Arctic technology continues to develop.
(Offshore, v. 42, no. 8, July 1982, p. 68, 70, 72, ill.)
NFSMO

The article describes Esso Resources Canada exploratory drilling program in the Beaufort Sea. (NFSMO)

Q-136700
Caisson heralds new approach to arctic island construction.
(Offshore engineer, 1982 [8] Aug., p. 28-29)
NFSMO

Esso Resources Canada has built in Japan an octagonal steel caisson, an artifical island, for placement in the Beaufort Sea. The article describes the design of the caisson. (NFSMO)

Q-136751
Ice is nice / Dome Petroleum Limited.
[S.l. : Dome Petroleum, Environmental Research Section, Production Development Dept., 1982?].
26 p. : ill. ; 28 cm.
Cover title.
NFSMO

In order to produce and transport crude oil from the Beaufort Sea, continued innovation in Arctic technology is required. The planning, engineering and testing of such systems, based on the successes of the last six years, is underway. As with exploratory drilling, the primary environmental concern associated with production and transportation operations is a major oil spill. Through research and development, industry and government will continue to ensure that the systems for use in the Beaufort Sea are as spill-free as possible. Adapting proven oil spill countermeasures and developing new ones as required will ensure that one of the world's most successful oil spill countermeasures program continues. (Au)

Q-137723
Beaufort Sea operations and the Hans Island ice force research program.
(APOA review, v. 6, no. 3, Winter 1983/84, p. 28-29, ill.)
ACU

... As Beaufort Sea operations approach the production phase, larger working platforms, islands and atolls are being designed which require a precise knowledge of multi-year floe collision forces and behavior. The significant parameters are ice thickness, floe size, impact velocity, ice characteristics and contact geometry. Collision events have for several years been simulated by mathematical models and ice tank tests. To be considered reliable, these data must be compared and confirmed with field measurements. Hans Island, in the Kennedy Channel midway between Canada and Greenland at about 81 degrees N latitude, was identified as an ideal location to collect field data. ... To date, the projects, operated by Dome Petroleum, have run through three seasons .... (Au)

Q-137740
Offshore pipeline transportation in the southern Beaufort Sea.
(APOA review, v. 6, no. 3, Winter 1983/84, p. 31-32, ill.)
ACU

This article traces the history of pipeline research and pipeline construction. The significant design considerations are the effects of ice scour and permafrost zones. (ASTIS)

Q-138207
Beaufort proposal sparks bitter controversy /
Burnet, P.
(Arctic policy review, 1984 [1] Jan., p. 11-12, ill.)
ACU

In March 1983, Gulf Canada Resources Inc. applied to the Department of Indian and Northern Affairs for permission to build a marine support base at Stokes Point on the north slope of the Yukon. Gulf wanted the base to supply its Beaufort Sea drilling operations, especially its huge new conical drilling unit which arrived in the Beaufort this summer from Japan. The application touched off a bitter public controversy that echoed the famous MacKenzie Valley Pipeline Inquiry of Mr. Justice Thomas Berger. ... (Au)

Q-138215
The rise and fall of the house that Jack built /
Lyon, J.
Toronto, Ont. : Macmillan, 1983.
227 p. : ill. ; 24 cm.
ISBN 0-7715-9777-0
Partial contents: Ch. 9. Beaufort: in fact or fantasy? - Ch. 10. Ice, the fearful enemy. - Ch. 12. Tuktoyaktuk: the two solitudes.
ACU

... Making newspaper headlines for over a year, the company's achievements and problems have captured the attention of the Canadian public and made Dome the business story of the decade. Now the absorbing tale of a company teetering on the brink of either glory or bankruptcy is revealed in fascinating detail. ... Lyon has seen the enormous and mixed effect Dome has had upon the native people and the ecology of the north, and describes the confluence of cultures with insight and humor. (Au)

Q-138517
Preliminary investigation of potential concepts for a gas production platform for the Tingmiark well location in the Beaufort Sea / Crest Engineering Inc. Dome Petroleum Limited [Sponsor].
[Calgary, Alta. : Distributed by APOA], 1976.
2 microfiches : figures, tables ; 11 X 16 cm.
(APOA project no. 130 : Preliminary design studies for production structures for the Beaufort Sea. Report, no. 1)
Appendices.
References.
ACU

A previous study by Crest Engineering Inc. investigated all possible structure concepts and determined the structure types that are suitable for use as an oil production platform in 55 m (180 ft) of water. This study determines structural systems that are suitable for use as a gas production platform in 29.0 m (95 ft) of water. The results of the previous study were used to limit this investigation to those structures previously found to be suitable for use in the southeast Beaufort Sea. This study is specifically oriented to the conditions found at the Tingmiark drilling site where a gas discovery was made in September 1976. (Au)

Q-138525
A preliminary analysis of requirements for development and operation of oil fields in the Beaufort Sea, Phase I : scoping study [Volume I] / Crest Engineering Inc. Dome Petroleum Limited [Sponsor].
[Calgary, Alta. : Distributed by APOA], 1976.
3 microfiches : ill. ; 11 X 16 cm.
(APOA project no. 130 : Preliminary design studies for production structures for the Beaufort Sea. Report, no. 2, v. 1)
Appendices.
ACU

The Phase I study defines the scope of investigation for a more detailed investigation of means to develop and produce potential major oil fields in 180-ft water depths of the Beaufort Sea. The present study does not analyze any of the various alternative systems mentioned herein nor does it develop estimates of the investments that will be required. This information will be developed by the detailed study. (Au)

Q-138533
A preliminary analysis of requirements for development and operation of oil fields in the Beaufort Sea, Phase II : survey of potential structures [Volume 2] / Crest Engineering Inc. Dome Petroleum Limited [Sponsor].
[Calgary, Alta. : Distributed by APOA], 1976.
3 microfiches : figures ; 11 X 16 cm.
(APOA project no. 130 : Preliminary design studies for production structures for the Beaufort Sea. Report, no. 2, v. 2)
Appendix: Information required for facilities design.
ACU

The Phase I study defined the scope of the investigation of a means to develop and produce 55 m (180 ft) water depths of the Beaufort Sea. As a result of discussions and review of the Phase I report, this Phase II study concentrates on the determination of viable structural systems and an anlysis of cost and time requirements for installation. The study also looks at what is required in the way of on-platform producing and ancillary facilities .... Dome Petroleum has made great progress in mastering this environment by developing the means to perform exploratory drilling. This study shows that the installation of drilling/production structures in this area is possible. Indeed, there may be a choice of structural systems that can be used. The choice of structures of course, depends on costs, foundation condition requirements. (Au)

Q-138541
A preliminary analysis of requirements for development and operation of oil fields in the Beaufort Sea, bibliography [Volume 3] / Crest Engineering Inc. Dome Petroleum Limited [Sponsor].
[Calgary, Alta. : Distributed by APOA], 1976.
(APOA project no. 130 : Preliminary design studies for production structures for the Beaufort Sea. Report, no. 2, v. 3)
ACU

This bibliography consists of articles from journals such as The Oil and Gas Journal, Imperial Review and Ocean Industry. (ASTIS)

Q-138606
Well spacing design criterion for permafrost, Beaufort Sea well completions / Enertech Engineering and Research Co. Goodman, M.A. Gulf Oil Canada Limited [Sponsor].
[Calgary, Alta. : Distributed by APOA], 1978.
1 microfiche : figures ; 11 X 15 cm.
(APOA project no. 152 : Beaufort Sea well completions and permafrost. Report, no. 2)
References.
ACU

This report presents a well spacing design criterion for multiple wells through Beaufort Sea permafrost. Effects of thaw-subsidence and freezeback are considered as the basis for the spacing criterion. Pressure due to decomposition of hydrated formations is not considered, although it is recognized that such pressure may be significant if hydrates are present. ... Values of Beaufort Sea permafrost properties used in this study were selected from information supplied to Enertech by Gulf Canada. Although these property values are reasonable for the type of soils encountered during shallow coring in the Beaufort Sea, sensitivity studies have been performed over a wide range of values in order to bound the effects of property variations. With the exception of ice rich soils, the results presented herein are applicable to the types of frozen soils expected beneath the Beaufort Sea, including mudstones, days, silts, coarse sands and gravels. The results do not apply to hard formations such as consolidated sandstone, limestone, and shale. (Au)

Q-139629
Fast progress on historic Norman Wells pipeline / Rowland, L.
(Oilweek, v. 35, no. 9, Apr. 2, 1984, p. 10-13, ill.)
ACU

Pipeline construction projects of last fall and winter have featured significant achievements in dealing with logistics and climate. In conjunction with the 30th annual conference of Pipeline Contractors Association of Canada, this annual winter season report ... reveals how owners and contractors carried out the jobs with exceptional success. (Au)

Q-139696
Symposium on Science and Hydrocarbon Exploration : the Beaufort Experience / Y.T. [Sponsor]. Dome Petroleum Limited [Sponsor]. Gulf Canada Resources Inc. [Sponsor]. Esso Resources Canada Limited [Sponsor]. Petro-Canada [Sponsor].
(Alaska/Canada north : neighbours in science : proceedings of the 34th Alaska Science Conference, 28 September-1 October, 1983, Whitehorse, Yukon. - [Fairbanks, Alaska] : American Association for the Advancement of Science, Arctic Division, [1984?], p. 52-61)
Abstracts only.
ACU

These abstracts cover papers on the following topics: ice-breaker design, ice cover in Tuktoyaktuk Harbour, Esso's island construction program, permafrost investigations in the Mackenzie Delta and Beaufort Sea, the Navy Oceanographic Data Distribution System, seabed geology of the Canadian Beaufort continental shelf, Mackenzie River water levels at breakup, Dome's oil spill program, MIZEX West 1983, and arctic data compilation. (ASTIS)

See Also : A-90042, A-107999, A-108006, A-108014, A-108146, B-52868, B-52876, B-52884, B-88633, B-91782, B-107093, B-108162, B-108170, B-108200, B-109320, C-61379, C-61417, C-68225, C-83860, C-108391, C-108650, C-121959, C-121991, C-138614, D-43877, D-74969, D-92134, D-92142, D-105872, D-107174, D-108154, D-108189, D-108197, D-108243, D-108448, D-108600, D-133418, D-138649, E-92061, E-104108, F-43869, F-43893, F-50474, F-108561, F-131954, G-3530, G-40517, G-56677, G-62987, G-68306, G-69639, G-70262, G-70270, G-70289, G-70300, G-70327, G-70335, G-83500, G-92118, G-92150, G-92169, G-107239, G-107247, G-107255, G-107263, G-107280, G-108251, G-108260, G-108278, G-108286, G-108294, G-108308, G-108316, G-108324, G-108332, G-108340, G-108359, G-108367, G-108375, G-122327, G-122408, G-122459, G-122475, G-122491, G-130206, G-130320, G-130796, G-131164, G-138550, G-138568, H-96164, H-96245, H-96253, H-96261, H-107204, H-107212, H-107220, I-43915, I-43923, I-44008, I-47210, I-69806, I-89290, I-89303, I-90018, I-90026, I-90034, I-90212, I-92177, I-96210, I-96237, I-106410, I-106992, I-107000, I-107018, I-107026, I-107034, I-107042, I-107077, I-107751, I-107760, I-107778, I-107786, I-107794, I-107816, I-107824, I-107832, I-107840, I-107859, I-107867, I-107875, I-108049, I-108073, I-108081, I-108111, I-108138, I-108219, I-108235, I-108570, I-108626, I-117250, I-118109, I-118214, I-124575, J-90220, J-90239, J-103721, J-105899, J-108090, J-115924, L-24562, L-24716, L-35912, L-36242, L-108413, L-136077, P-53937, P-111406, R-89273, R-89699, R-92185, R-93475, R-95818, R-108464, R-111392, R-119580, R-123528, R-128015, R-140767, S-108596, T-6050, T-7951, T-7960, T-11193, T-63703, T-88145, T-93491, T-95729, T-95842, T-106054, T-106089, T-106127, T-108456, U-87530, U-92010, U-92029, U-92045, U-92053, U-118150, V-13951, V-32816, V-45225

R - GOVERNMENT, ECONOMIC CONDITIONS, AND SOCIAL CONDITIONS

R-5940
Tuktoyaktuk : a community study / Bachmayer, G.W. [et al].
[Calgary : University of Calgary, Faculty of Environmental Design, 1978].
132p. : ill, maps (part. fold.) ; 29cm.
Bibliography: p.129-132.
ACU

... The purpose of the study is to assist the community of Tuktoyaktuk in achieving a socially and environmentally acceptable interface between the community and industry. To achieve this purpose we have the following objectives: a) to identify the effects which the residents of the community of Tuktoyaktuk feel that industry is having on their community b) to provide alternatives for dealing with these effects which reflect the views of people in the community. ... The study deals with such matters as community growth, housing, education, alcohol, water and waste and communications. (Au)

R-11215
Northern resident employment by the oil industry working in the Yukon and Northwest Territories / Petroleum Industry Committee on the Employment of Northern Residents. Conway, T.D.
[Calgary] : Petroleum Industry Committee on the Employment of Northern Residents, 1969?- .
tables ; 28cm
Annual.
Description based on 1973/74 issue.
1973/1974 - compiled by Tom Conway.
ACU

Statistical information on the number of northern residents employed by the industry and their contractors. Tabular data is presented under the geographical area surveyed. Each table is divided into 4 columns: job classification, number of men, weeks employed, remarks. (ASTIS)

R-11509
Aklavik, a future fur fashion centre? / Verge, P.
(Arctic in colour, v. 6, no. 3, 1978, p. 30-35, col. photos.)
ACU

Describes how fur coats are made and how the industry is progressing in Aklavik, N.W.T. The coats are shown at New York and Montreal fur fashion shows. (ASTIS)

R-39462
Avoiding further downstream crises : the Mackenzie River Basin Committee / Creery, R.A.
(Canadian water resources journal, v. 4, no. 3, 1979, p. 60-66, map)
Invited paper presented to the CWRA Conference on Boundary Waters of Canada, May 30-June 1, 1979, Ottawa.
ACU

This paper, presented by the Director of the Department of Planning and Program Evaluation, Government of N.W.T., gives an administrator's view of the role of the Committee. Circumstances leading to establishment of the Committee, participation by all riparian jurisdictions in the Mackenzie basin, and priorities of the Committee are described. (ASTIS)

R-52590
The Mackenzie River basin study / Foerstel, H.
(Canadian water resources journal, v. 5, no. 2, 1980, p. 13-27, ill., maps)
Paper presented to the CWRA Conference "Evolving Water Management Strategies in Canada", June 4-6, 1980, Kelowna, B.C.
References.
ACU

The study covers almost one-fifth of Canada, the largest area ever studied in a river basin planning study under the Canada Water Act. The program, its limitations and experiences during the first two years are described. ... (Au)

R-76910
A review and analysis of perceptions concerning success in renewable resource development projects in the Mackenzie Delta area / McCracken, C. Canada. Northern Social Research Division.
[Ottawa : DIAND, 1978].
56p. ; 28cm.
Appendices.
Bibliography : p.56.
ACU

The primary objective of the Canadian Government in the North is to assist the residents to achieve a higher standard of living, quality of life and equality of opportunity through methods which are compatible with their preferences and aspirations. Development projects should be based on the economic and social needs of a community interwoven into the cultural fabric of the people. ... As a result of the Berger Inquiry, emphasis has been placed on renewable resource development North of 60. The Inquiry offered the residents the opportunity to voice their opinions concerning development. ... One of the resulting recommendations was that while some larger scale non-renewable resource development was viable, this activity should exist 'side-by-side' with traditional renewable resource activities. ... three renewable resource projects in the Mackenzie Delta [were] studied. The purpose of this case study is to review and analyse perceptions concerning the success of these projects. ... In the first case information will be gathered concerning whether the projects are in fact considered a success and the reason for this decision. ... In the second case, there may be certain characteristics that have contributed to the success of the projects or that have created problems. ... To achieve these ends a longitudinal study was conducted with particular emphasis placed on workers' attitudes, satisfaction and the degree of integration of work activities with participation in traditional home, community and economic activities. The three projects considered are the Aklavik Fur Cooperative, the Inuvik Serving Centre and the Nanook Fur Cooperative in Tuktoyaktuk. The aim of the investigator was to interview as many individuals along the lines of production to elicit views concerning this issue. The result of the study is a list of perceptual principles of success that the respondents felt were important factor to be considered in these and other renewable resource development projects. ... (Au)

R-76853
N.W.T. capital resurgence forecast for '81 / Mitchell, G. [Editor].
[Yellowknife : Chamber of Commerce, 1981].
12p. : ill. ; 28cm.
Reprinted from the November 1980 issue of Trade and commerce magazine, statistics updated June 1981.
ACU

Statistics are provided for Yellowknife covering demographic, social, and economic indicators such as income, retail trade, and construction. Also contains capital forecasts, and an outline of community services available. (NPB)

R-76961
Yellowknife community audit 1981 / N.W.T.
[Yellowknife : s.n., 1981].
8p. ; 19cm.
ACU

Summarizes wide variety of social, and demographic indicators and provides lists of government and community services available. (NPB)

R-77224
Spatial price survey, Yellowknife-Edmonton / N.W.T. Bureau of Statistics.
June, 1977- .
[Yellowknife : Dept. of Information, Government of the Northwest Territories], 1977- .
ill., figures, tables ; 28cm.
ISSN 0228-7307
Information taken from June 1981 issue.
Appendices.
ACU

This publication provides price comparisons between Yellowknife and Edmonton compiled during the month of June 1981. Incorporated in this survey are nearly 6000 price quotes for over 650 consumer goods and services chosen from the seven components of Statistics Canada's Consumer Price Index. These components are: food; housing; clothing; transportation; health and personal care; recreation, reading and education; and tobacco and alcohol. Included in this comprehensive price survey is a summary of results, an outline of methodology used and detailed statistical tables. (Au)

R-77585
Tungsten : une mine au coeur des montagnes [Tungsten : a mine in the heart of the mountains] / Raoult, C. Poirel, M. [Illustrator].
(North/Nord, v. 26, no. 1, Spring 1979, p. 6-11, ill.)
Text in French.
Document not seen by ASTIS.
ACU

Description of the small mining community of Tungsten, on the border of the Yukon and Northwest Territories, in the heart of the Selwyn Mountains. (NPB)

R-77739
Changing perceptions of industrial development in the north / Cox, B.
(Human organization, v. 34, no. 2, Spring 1975, p. 27-33)
References.
Document not seen by ASTIS.
ACU

Brief discussion of the issues at stake in the industrial development of the Mackenzie river region, particularly concerning the proposed gas pipeline from Alaska, across northern Yukon and via the Mackenzie. (NPB)

R-77925
A study of migration behaviour in the Mackenzie District of northern Canada / Kuo, C.-Y. Lu, C.-M.
Ottawa : DIAND, Northern Policy and Planning Branch, 1975.
91p. : ill., maps.
OORD, ACU

The study is undertaken to investigate factors which influence members of the labour force in the Mackenzie District to migrate .... The main source of data for the study is the Mackenzie Manpower Survey conducted by the Department of Indian Affairs and Northern Development during the period between September to December of 1970. A multiple linear regression equation is used to estimate the probability of migration of members of the labour force. The personal characteristics and the socio-economic background of an individual are included in explanatory variables which are considered to be major influences on his or her attitude towards migration. ... (Au)

R-77968
L'influence de l'education sur les gains dans le district du Mackenzie du Nord canadien [The effect of education on earnings in the Mackenzie District of northern Canada] / Kuo, C.-Y.
Ottawa : Ministere des Affaires indiennes et du Nord canadien, Direction de l'expansion economique du Nord, 1972.
22p.
Also available in English.
Text in French.
Document not seen by ASTIS.
OORD

R-89273
Jurisdiction in arctic waters - Canada's claims and their international context / Harrison, R.J. Gault, I.T. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
40 p. ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD07)
ACU

... Sovereignty over the territorial sea has long been established, but since the end of the second world war, coastal states have sought to exercise jurisdiction over a variety of offshore activities beyond this limit. In the present context, two particular claims are of primary importance: first, exclusive jurisdiction over the natural resources of the seabed and subsoil of the continental shelf for the purposes of regulation and control of exploration and development; and second, the right to take measures to protect the marine environment and the coastline from oil pollution damage. ... Canada is currently implementing the new regime for the control of offshore exploration and development outlined in the National Energy Program. This regime will apply to the Canadian Arctic, islands and offshore alike. The need to exercise proper control over aspects of offshore operations, especially in the environmentally sensitive northern waters, will compel Canada to define her offshore jurisdictional claims with greater precision than has hitherto been required. Similarly, the rules of international law against which the validity of these claims must be tested will hopefully be determined following the successful conclusion of the Law of the Sea Conference. (Au)

R-89699
Mackenzie Valley Pipeline Inquiry : response to Commission Counsel submissions / Parker, J.H.
Yellowknife : [s.n.], 1976.
74 leaves ; 28 cm.
Document not seen by ASTIS.
QHMNS

This paper is a critique of some of the socio-economic submissions made to the inquiry. (LET)

R-89834
Planning report and development plan : Norman Wells, N.W.T. / Makale, Holloway & Associates Ltd. Associated Engineering Services Ltd. N.W.T. [Sponsor].
Edmonton : Makale, Holloway & Associates Ltd., 1970.
50, viii p. : ill., maps (folded) ; 28 cm.
Appendix.
ACU

The Planning Report and Development Plan for Norman Wells was commissioned by the Government of Northwest Territories .... As the community is supported by an adequate economic base, and the population consists mainly of well salaried employees of the refinery and government, the main emphasis was placed on the physical form of the community; the greatest need lies in this particular area. [Population and employment are discussed with an emphasis on seasonal fluctuation.] ... (Au)

R-91332
The effect of education on earnings in the Mackenzie District of northern Canada / Kuo, C.-Y.
[Ottawa] : DIAND, 1972.
v, 20 p. : tables ; 28 cm.
(North of 60)
Appendix.
References.
Also available in French under title: L'influence de l'education sur les gains dans le district du Mackenzie du Nord canadien.
ACU

... The primary purpose of this paper is to investigate if education plays a significant role on ethnic earnings in the Mackenzie District. ... multiple linear regression has been adopted to analyze major determinants of ethnic earnings in the District of Mackenzie. Formal education in elementary and secondary schools for Indians has significant influences on earnings. This effect would not be realized in the cases of Eskimos and Whites until they reached secondary school. In addition, the statistical evidence casts doubts on the effect of education on Metis earnings. However, university education and vocational training have much stronger impacts on earnings than formal education, since they lead directly to employment. ... the higher the proportion of Whites to total population in a settlement, the higher are the annual earnings of all workers, and particularly those of the indigenous workers. This indicates the significance of southern influences on the earnings of northern indigenas. ... the substantial gaps in earnings between Whites and natives have been shown to be attributable to education, "openness", marital status and age structure of workers, as well as ethnic differences. (Au)

R-91405
Continuing and special education, Department of Education, Government of the Northwest Territories, Inuvik region : program survey and review, 1971-72 / Hill, C.
Inuvik : [Govt. of N.W.T.], 1972.
27 p. ; 28 cm.
ACU

[This brief] ... is a description of Continuing and Special Education opportunities and the people of the Region who have participated in these programs. (Au)

R-92185
Information survey, kinds and sources, for the Environmental Assessment Review Process : Beaufort Sea hydrocarbon production and transportation proposal / MacDonald, E.M. Canada. Federal Environmental Assessment Review Office [Sponsor].
Hull, Que. : Federal Environmental Assessment Review Office, 1982.
1 v. (various pagings) : figure ; 30 cm.
Updated June 1982.
ACU

This report contains the responses to a survey undertaken to determine kinds and sources of information available to participants in the Environmental Assessment and Review Process ... as applied to the Beaufort Sea Hydrocarbon Production and Transportation Proposal. The first section of the report deals with information sources in general and consists of 60 agency Information Sheets. Each information sheet identifies a contact for the agency, as well as objectives, areas of expertise, relevant current projects, publications and information services of that agency. The second section contains more specific information on kinds of data available in the form of 162 Project Information Sheets. ... Information provided includes project objectives, approach and/or progress, anticipated time frame, reports or publications, agencies and researchers involved, and a contact for additional information. Relationship of individual projects to the Environmental Assessment Review Process of the Beaufort Sea Hydrocarbon Production and Transportation Proposal is indicated with a subject by zone index. (Au)

R-93416
Territorial employment record and information system (TERIS) / Meldrum, S.M. Canada. Environmental-Social Program, Northern Pipelines [Sponsor].
[Ottawa? : DIAND?], 1975.
ii, 54 p. : figures, tables ; 27 cm.
(Report - Canada. Task Force on Northern Oil Development, no. 74- 48)
Appendices.
ACU

This report discusses the design and testing of a labour force and employment information system for ascertaining on a continuous basis the status of the labour force in communities along the Mackenzie Valley pipeline route and the training capabilities of that labour force related to both pipeline construction and operation and Mackenzie Highway construction. ... Originally intended to apply only to the Mackenzie Valley, the scope of the project was expanded to cover the whole of the Northwest Territories. Its aim was the design and implementation of an information acquisition system on the potential labour force of the Northwest Territories which would provide both statistical data for manpower planning and research purposes and also a means for identifying individuals for potential jobs or training programs. Having been broadened in scope to cover the whole of the Northwest Territories, the project was named the Territorial Employment Record and Information System, TERIS. ... (Au)

R-93467
The lower Mackenzie region : an area economic survey / Bissett, D.
Ottawa : DIAND, 1967.
xii, 520 p. : maps (some folded), tables ; 29 cm.
Appendix.
Bibliography : p. 505-520.
ACU

"The lower Mackenzie Region" Area Economic Survey is an attempt to examine the lower Mackenzie River area and its diversity of physical and human landscapes. ... the survey includes the settlements of Inuvik, Aklavik, Fort McPherson, Arctic Red River, Reindeer Station and Tuktoyaktuk and their general resource areas. ... The present status of the economy is unsatisfactory in terms of productivity, the input of monies for development and the outflow of products. Marketing systems are unsatisfactory or ill-defined. A program of integrated resource use and the establishment of marketing systems appear to be absolute requirements. Continuing advancements in education, and a replacement of non-residents with residents in positions of increasing responsibility will partly solve the problem of increasing population. For the interim period continuous efforts should be made to encourage out-migration of younger age groups. (Au)

R-93475
Communities of the Mackenzie : effects of the hydrocarbon industry / Van Ginkel Associates Ltd. Canadian Arctic Gas Study Limited [Sponsor]. Gulf Oil Canada Limited [Sponsor]. Imperial Oil Limited [Sponsor]. Shell Canada Limited [Sponsor].
[S.l. : s.n.], 1975.
131 p. : folded maps, tables ; 28 cm.
ACU

The objective of this study is to measure and define the economic and social impact of the proposed Mackenzie Valley natural gas pipeline and the associated hydrocarbon exploration and development activities, on the people and the communities that will be directly affected. ... It was concluded that, in economic terms -- jobs and income -- the impact of a decision to build the pipeline should be more favourable to the people in the study region than the impact of the decision not to build a pipeline. In terms of the social impact of the decision to build the conclusions are, of necessity, subjective. ... it is argued with some apparent relevance that increasing income will increase social dislocation ... reduce anti-social behaviour and so improve the social circumstances in the study area. ... The creation of jobs and income ... will increase the revenues of the communities and will contribute to financing the improvement of the communities. The implication of the decision not to build the pipeline and so to deny the associated hydrocarbon activities, will be to forego these improvements or to effect them at the cost of the general Canadian taxpayer. It is concluded that, in terms of the improvement of the communities, the further development of the hydrocarbon industry through the decision to build the pipeline should be positive in its effect. (Au)

R-93521
Research on adult trainees in the Mackenzie area / Contract Education & Training Services Ltd. N.W.T. [Sponsor].
[S.l. : s.n.], 1975.
xii, 151 p. : ill., maps, tables ; 28 cm.
(Report - Canada. Task Force on Northern Oil Development, no. 74- 41)
Appendices.
ACU, OORD

... The Continuing and Special Education (CASE) programs in the Northwest Territories have been in operation under their present form, title and administration since 1969, and under various other forms and arrangements since 1957 ... the Department of Education of the Government of the Northwest Territories was requested to coordinate research to evaluate past and present training programs in selected communities in the Mackenzie area. ... The following report is the result of that evaluation. ... Programs operated by the Continuing and Special Education Division range from excellent to good. The few that are weak are salvageable. The most noticeable weaknesses lie within the organization itself, in its records, its lines of communication, its dissemination of information and its counselling structure. ... (Au)

R-94234
Tuktoyaktuk - Cape Parry : area economic survey 1962 / Abrahamson, G.
Ottawa : DIAND, 1968.
ix, 83 p. : figures, maps (some folded), tables ; 28 cm.
(A.E.S.R. report, no. 62/ 2)
Appendices.
References.
ACU

This report is one of a series of Area Economic Surveys carried out ... to determine the basic for local economic and social progress in the Northwest Territories. Basically the surveys are intended to: 1) Assess the renewable resources as to their ability to sustain the local population. 2) Determine the degree of exploitation of these resources and the efficiency of their use. 3) Investigate and explain the social and economic factors affecting resource utilization. 4) Recommend ways and means whereby the standard of living of the local people might be improved. ... This report is divided into two main sections. The first deals with a geographic and demographic setting, and the second outlines the economy with specific recommendations for its improvement. ... The foregoing chapters have shown that ... the Eskimos have moved off the land to concentrate in the settlements, and that this shift has led to reduced use of the country's basic resources. ... This study has concerned itself with the ways and means whereby the standard of living of the local people may be improved. ... [Several socio-economic recommendations were presented. Such as:] 1. That the Northern Transportation Company Limited at its Tuktoyaktuk depot employ local Eskimos for some of the jobs now being performed by men brought in from the south. ... ... 4. That the purpose and function of the Eskimo Loan Fund be given publicity throught the region. ... (Au)

R-94250
Rae - Lac La Martre : an area economic survey / Anders, G. Morissett, J.
Ottawa : DIAND, 1969.
vii, 113 p. : figures, maps, tables ; 28 cm.
(A.E.S.R. report, no. 66/ 2)
Appendices.
Bibliography: p. 107-109.
ACU

This report is one of a series of Area Economic Surveys carried out ... to determine the basic for local economic and social progress in the Northwest Territories. Basically the surveys are intended to: 1) Assess the renewable resources as to their ability to sustain the local population. 2) Determine the degree of exploitation of these resources and the efficiency of their use. 3) Investigate and explain the social and economic factors affecting resource utilization. 4) Recommend ways and means whereby the standard of living of the local people might be improved. ... The overriding fact that must govern every consideration of the future of the Dogrib settlements is that Yellowknife is the regional growth centre. Barring any major new mineral developments in the area, it does not appear that any secondary industry developments in any of the Dogrib settlements are likely to have any chance of success. As pointed out earlier, efforts to create wage employment opportunities for Dogrib Indians should be concentrated in Yellowknife, though of course a slight improvement in the ration of native to white employment at Fort Rae is possible particularly if the suggested service functions there are enlarged. Lac La Marte should be viewed largely as a retreat for the traditionally inclined among the Dogrib after the other settlements have been phased out. ... (Au)

R-94277
Great Slave Lake - south shore : an area economic survey, 1967 / Radojicic, D. Anders, G. [Editor].
Ottawa : DIAND, 1968.
xi, 128 p. : ill., figures, maps (folded) : 28 cm.
(A.E.S.R. report, no. 67/ 3)
Appendix.
Bibliography: p. 105-107.
ACU

This report is one of a series of Area Economic Surveys carried out ... to determine the basis for local economic and social progress in the Northwest Territories. Basically the surveys are intended to: 1) Assess the renewable resources as to their ability to sustain the local population. 2) Determine the degree of exploitation of these resources and the efficiency of their use. 3) Investigate and explain the social and economic factors affecting resource utilization. 4) Recommend ways and means whereby the standard of living of the local people might be improved. ... the area ... of this survey is without doubt the most highly developed already, as well as the one most amenable to further economic development. ... difficulties still exist ... ... The most important factor for future regional development will be the extension of the road and highway network. ... the present tourist potential of the region is not exploited to its full capacity. ... The market for local farm and garden products can be expanded There still seem to be areas of employment opportunity, particularly in the semiskilled and seasonal sectors, in which the available native labour pool is not fully utilized. ... The feasibility of a smelter for Pine Point ores and those of possible additional producers in the area at Pine Point should be reassessed periodically. ... (Au)

R-94293
The lower Liard region : an area economic survey 1968 / Higgins, G.
Ottawa : DIAND, 1969.
xiii, 275 p. : ill., figures, maps (folded), tables ; 28 cm.
(A.E.S.R. report, no. 68/ 3)
References.
ACU

This report is one of a series of Area Surveys carried out ... to determine the basis for local economic and social progress in the Northwest Territories. Basically the surveys are intended to: 1) Assess the renewable resources as to their ability to sustain the local population. 2) Determine the degree of exploitation of these resources and the efficiency of their use. 3) Investigate and explain the social and economic factors affecting resource utilization. 4) Recommend ways and means whereby the standard of living of the local people might be improved. ... the study region is rather unique in N.W.T. in that it possesses a broad spectrum of natural resources ... that allow an order to be established for their timely development as optimum economic conditions present themselves. ... an unparalleled opportunity exists at present, and in advance of an impending acceleration in economic activity, to prepare a large number of Indians in the potential labour-force for up-coming opportunities requiring a wide and interesting range of skills. If a plan is not devised to achieve that objective then the prospects for the Indian population will quickly revert to the familiar one of crisis in the midst of opportunity. Lastly, a costly arrangement of population centres is present in the region .... (Au)

R-95540
Appendices : construction trades manpower availability forecast and recruitment strategy / Mackenzie Delta Gas Development System.
[S.l. : s.n.], 1977.
1 v. (various pagings) : tables ; 28 cm.

The book is a collection of appendices dealing with aspects of employment, labour and training. (LET)

R-95613
The Mackenzie Delta logging project.
(North, v. 9, no. 1, Jan./Feb. 1962, p. 39)
ACU

A summary of how the logging project commenced, the associated vocational training, the area logged, and its success in the first year. (LET)

R-95664
Nortran : employment and training for northerners.
[Calgary? : s.n.], 1977.
11 leaves : ill. ; 29 cm.

... The main objective of the training program is to provide a skilled, trained labour force from the N.W.T. and Yukon to operate and maintain proposed northern gas transmission and processing facilities. Northern residents interested in careers with the petroleum industry are encouraged to apply for training positions provided by the participating companies at various sites throughout Alberta, Saskatchewan, Manitoba and the N.W.T. NORTRAN assists in relocation, and provides accommodation and vacation subsidies. A counselling service is also available to assist trainees in the process of adapting to a new social and job environment. In addition, training is monitored and education assistance provided where possible. This booklet describes some of the positions which become available through NORTRAN from time to time. (Au)

R-95818
Economic impact of a transportation corridor in the Fort Simpson-Norman Wells region, N.W.T. / Gemini North Ltd. Alberta Gas Trunk Line Company Limited [Sponsor]. Canadian National Railway Company [Sponsor].
Yellowknife : s.n., 1971.
ii, 76 p. : tables ; 28 cm.
ACU

[This study is concerned with] ... the economic impact of a proposed transportation corridor from an area south of Fort Simpson (referred to as the Liard River crossing) north to Norman Wells. ... The economic objectives of the corridor study are to evaluate and identify the potential impact in terms of incomes, employment and development possibilities which might result from the construction and maintenance of a transportation corridor incorporating an oil and gas pipeline, waterway transportation network, road system and communications network. ... (Au)

R-100722
Rocher River, Northwest Territories / Pearson, R.
(Arctic, v. 22, no. 2, June 1969, p. 156-158)
ACU

R-105546
Employment and population projections for the Mackenzie Delta region 1975-1985 / Canada. DIAND.
[Ottawa : DIAND], 1976.
21 p.
Document not seen by ASTIS. Citation from NPB-V1.

Draft report prepared as part of the Mackenzie Delta Regional Planning Project. Projections based on existing population structure and current demographic trends as well as a number of alternative scenarios for oil and gas development. (NPB)

R-105929
Occupational preferences of northern students / Smith, D.G.
[Ottawa] : DIAND, 1972.
23 p.
(Social science notes, 5)
Document not seen by ASTIS. Citation from NPB-V1.
ACU

This is a report on the initial findings of a questionnaire study conducted among over one thousand high school students of all ethnic groups in the Mackenzie River delta, Yellowknife, Churchill and Frobisher Bay. The questionnaires explored the occupational prestige values and occupational aspirations of the students, and found a strong correlation between all ethnic groups. It was further apparent that the school students attended, rather than their ethnic affiliation, was a principal factor in this similarity. (NPB)

R-108464
Beaufort Sea development : an infrastructure analysis / Dome Petroleum Limited. N.W.T.
[S.l. : s.n.], 1980.
7 microfiches : figures, tables ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWZ01)
Appendices.
References.
ACU

This report on Beaufort Sea Development has been prepared jointly by the Government of the Northwest Territories and Dome Petroleum. Its purpose is to begin the assembly of data in order that each party may have a working familiarity with the potential needs of the other. No attempt has been made to draw conclusions or to make recommendations. ... The report focuses on the production of oil from geological structures beneath the deeper waters of the Beaufort Sea, specifically the exploration permits in which Dome Petroleum has an interest. ... The report does not address considerations of environmental, social or economic impacts in any depth. These important subjects are being dealt with in other studies and it is believed that this report will be useful in these wider contexts. A hypothetical projection of oil development and production has been made in order to illustrate the scale of activities which could occur during the next fifteen years. Information on government organization and communities in the Northwest Territories has been compiled. The infrastructure requirements associated with the production of oil and gas from the Beaufort Sea are described. A correlation can be made between the existing facilities and those which will be required. It will then be possible to coordinate resident interests, government policies and company practices most effectively. (Au)

R-111392
Socio-demographic field investigations for the Norman Wells database project / Bone, R.M. Pomeroy, J.W.
(Proceedings, Northern Population Workshop IV : Regional development and the role of population research = Actes du Quatrieme Colloque sur les Populations Nordiques : Developpement regional et role de la recherche demographique / Edited by K. de la Barre. - Montreal : Committee on Northern Population Research, Universite de Montreal, 1983, p. 183-207, figures)
Appendices.
References.
ACU

The Norman Wells Oil Field Development and Pipeline Project will have a direct impact on four communities along the MacKenzie River. ... With Esso making a special effort to employ residents of the Northwest Territories, some are expected to relocate in Norman Wells or to commute to this center. Thus, changes in residency, occupation and income of such northerners are forecast during the project lifespan. These changes should accelerate the growth of the wage economy in the region, shift local workers from lower paying jobs and part-time employment into full-time high paying jobs and broaden the region's infrastructure. Thus, the Norman Wells Project is expected to create three major changes in this region: (1) To increase the population of Norman Wells. (2) To draw northerners into the wage economy on a full-time basis. (3) To create a major energy base at Norman Wells and an energy corridor in the Central MacKenzie District. ... This database will serve as the cornerstone of the monitoring programme. ... [which] is an attempt to measure change in certain variables over time. ... (Au)

R-113565
The call of the Arctic / Conant, M.A.
(Oceanus, v. 25, no. 4, Winter 1982, p. 51-57, ill.)
References.
ACU, NFSMO

... The mix of national and international complexities in Arctic operations cannot be sorted out on lower political and administrative levels unless and until the federal interests are defined and then agreed to between Ottawa and Washington. Canadian and United States interests are entirely comparable, but that does not mean that different institutional processes, competing claims of sovereignty, and differences in laws and policies will be quickly resolved. We know very well they will not be. It is thus all the more important that we begin bilateral negotiations. Until the two governments resolve their differences, there is a great chance that the discovery of exploitable resources will not be followed by their exploitation. [The article considers those factors which require early discussion by the two countries: defense, sovereignty and the arctic islands waters, environmental considerations, arctic research, jurisdiction of areas of the Outer Continental Shelf.] (Au)

R-115614
Beaufort Sea Environmental Assessment Panel : procedures for general sessions / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea.
[Ottawa : Beaufort Sea Environmental Assessment Panel], 1983.
2, 17 p. : 28 cm.
ACU

The Beaufort Sea Assessment Panel has prepared procedures for the purpose of providing guidelines to ensure that the delivery of presentations will be executed in an efficient and fair manner, with sufficient structure to provide useful results to participants and to the Panel; and in a manner that will foster constructive discussion among participants. These guidelines include procedures for community sessions. These procedures are for general sessions. (ASTIS)

R-115622
Beaufort Sea Environmental Assessment Panel : procedures for community sessions / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea.
[Ottawa : Beaufort Sea Environmental Assessment Panel], 1983.
7 p. ; 28 cm.
ACU

The Beaufort Sea Assessment Panel has prepared procedures for the purpose of providing guidelines to ensure that the delivery of presentations will be executed in an efficient and fair manner, with sufficient structure to provide useful results to participants and to the Panel; and in a manner that will foster constructive discussion among participants. These guidelines include procedures for community sessions. (ASTIS)

R-119580
CARC workshop on northern development, Canada balks at cooperative resource management.
(The arctic policy review, 1983 [06-07] June-July, p. 3-10, ill.)
ACU, NFSMO

This article reports on the CARC's Third National Workshop on People, Resources and the Environment North of 60 Degrees held at Yellowknife June 1-3, 1983. The theme was resource management in the Canadian North. Responses to DIAND's granting permission to Gulf Canada's Stokes Point project are included, as well as discussion of Inuit sea claims. (ASTIS)

R-123528
Beaufort Sea Environmental Assessment Panel draft agenda and draft schedule for general public sessions / Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea.
[Vancouver, B.C. : Beaufort Sea Environmental Assessment Panel], 1983.
38, [8] leaves ; 28 cm.
ACU

The attached draft schedule and draft agenda were prepared by the Beaufort Sea Environmental Assessment Panel Secretariat and approved by the Panel to assist participants to prepare for their attendance and participation at the

General Public Sessions. The following qualifications should be noted: 1. ... The dates shown are tentative and subject to change before or during each General Session. Such changes will be made where more time or less time is required for a subject. 2. ... The subject lists are meant as general guides to focus discussions and allow proponents, intervenors, and the Panel to have technical staff available where and when necessary. 3. The attached agenda may not address all issues. ... 4. Although it is indicated that the proponents will be given the opportunity to open each subject session, it is not necessary that the proponents do this with each issue. (Au)

R-128015
The northern energy search / Canada. EMR.
Ottawa : Energy, Mines and Resources Canada, 1983.
32 p. : col. ill. ; 15 X 23 cm.
ISBN 0-662-12701-3
Cover title.
ACU, NFSMO

What do northern energy reserves, lying far beneath the frozen tundra or the ice-choked waters of the High Arctic, mean for Canadians? How can the cost and effort in finding these resources, bringing them into production, and moving them to Canadian markets, be justified? The answers are simple; Canada's easily accessible oil and gas reserves are running out, and frontier resources will be needed to meet Canada's future needs. Despite significant efforts to conserve energy, Canada still needs petroleum products for transportation, heating, and industrial processes - the list is virtually endless. ... Other sources must be found to replace the ones on which we now depend. ... So the challenge remains - to develop the North's energy resources in an environmentally and socially acceptable manner, so that oil and gas from Canada's Arctic can one day make a significant contribution to Canadian energy security. (Au)

R-135593
A comparison of the government of the Northwest Territories and the Denendeh government proposal / N.W.T. Legislative Assembly. Special Committee on Constitutional Development.
[Yellowknife, N.W.T. : Special Committee on Constitutional Development], 1982.
1 folded sheet (6 p.) ; 22 X 28 cm.
Cover title.
ACU

This booklet was prepared by a Working Group to make sure the communities and members of the public were informed, consulted and involved in political and constitutional reforms for the western part of the Northwest Territories. It presents a brief review of similarities and differences between the government as it now exists, and the reforms presented by the Dene Nation and Metis Association of the N.W.T. (ASTIS)

R-136271
Jurisdiction in Canadian Arctic waters - unresolved issues / Gilmour, J.
(Proceedings : Northern Transportation Conference : the challenge of the eighties, Whitehorse, Yukon, October 5-7, 1982. - [Ottawa : Transport Canada, 1983?], p. 163-168)
ACU

Increased exploration for non-renewable resources in the Canadian High Arctic, poses unresolved problems for government, business, and lawyers with respect to the jurisdiction of the waters and land north of 60 degrees latitude. Since the voyage of the "S.S. MANHATTEN" in 1969, Canada has attempted to assert some form of authority over this region, although the Canadian government's position to Arctic sovereignty has been queried by many international lawyers. With the proposed implementation of the federal National Energy Programme and the Canada Oil and Gas Act, the federal cabinet envisions this northern frontier as a potential source of additional revenue while coincidentally reducing Canada's reliance on imported fuels. It is foreseeable that Canada could be challenged by a foreign power over the right to the land, water or ice and the resources under them in this particular region, due to the vast economic potential this region holds. (Au)

R-140767
Norman Wells : the oil center of the Northwest Territories / Bone, R.M.   Mahnic, R.J.
(Arctic, v. 37, no. 1, Mar. 1984, p. 53-60, figures, table)
Appendix.
References.
ACU, NFSMO

In 1920, a drilling team funded by Imperial Oil discovered a petroleum deposit along the shore of the Mackenzie River north of the settlement of Fort Norman. This wilderness site later became the community of Norman Wells and its growth has been directly attributable to petroleum. The current expansion of production at Norman Wells is aimed at southern Canadian markets and a pipeline is being constructed from Norman Wells to existing pipelines in northern Alberta. As the focal point of this major resource expansion, the character, size, and functions of the community are changing. These changes are transforming Norman Wells into an important regional center. (Au)

See Also : B-16195, F-128040, I-62200, I-68411, I-98531, I-115169, J-115924, L-29602, N-78514, P-37621, P-89800, P-106470, P-111406, P-115428, Q-5037, Q-9873, Q-9881, Q-16470, Q-16497, Q-23230, Q-23256, Q-23388, Q-24481, Q-25410, Q-29661, Q-30821, Q-30872, Q-32085, Q-46175, Q-54410, Q-61522, Q-64025, Q-73822, Q-77542, Q-80683, Q-80691, Q-89621, Q-89702, Q-91383, Q-92266, Q-93408, Q-93599, Q-95702, Q-95761, Q-95940, Q-95958, Q-95990, Q-105589, Q-106011, Q-106828, Q-106836, Q-106844, Q-106852, Q-106860, Q-106879, Q-106887, Q-106895, Q-106909, Q-106917, Q-106925, Q-106933, Q-106941, Q-106950, Q-106968, Q-106976, Q-106984, Q-108472, Q-108510, Q-108529, Q-108545, Q-108642, Q-108669, Q-108715, Q-112682, Q-112712, Q-112720, Q-113395, Q-114650, Q-114782, Q-115592, Q-115606, Q-115630, Q-116823, Q-123510, Q-123641, Q-123650, Q-126241, Q-138207, S-42250, S-53481, S-78379, T-2399, T-6050, T-7951, T-7960, T-11517, T-23647, T-46191, T-77836, T-89575, T-89907, T-91154, T-93513, T-94242, T-94420, T-95524, T-95974, T-100641, T-105392, T-105597, T-105600, T-105627, T-105643, T-105651, T-105953, T-105961, T-106054, T-106127, T-109258, T-131458

S - LAND USE, LAND MANAGEMENT, AND REGIONAL PLANNING

S-6130
Dempster Highway management plan / Canada. Northern Roads and Airstrips Division.
[Ottawa] : Northern Roads and Airstrips Division, Dept. of Indian Affairs and Northern Development, 1978.
30 leaves : map ; 28cm
ACU

The aims of the Dempster Highway Management Plan are: 1. To allow year-round use of the highway with minimum adverse impact of the highway and its users on the environment. Conservation and management are to be regarded as interdependent; 2. To introduce a method of control that is technically and economically feasible as well as being socially and environmentally acceptable. It is recognized that certain aspects that are environmentally or socially acceptable to one sector of our society are often unacceptable to another group. Conflict of this nature would possibly occur among the following highway users: native people, tourists, hunters, truckers, hikers, campers, canoeists, photographers, artists, miners, petroleum and mineral exploration crews. It is hoped, however, that the plan will be able to accommodate the needs and interests of the majority of people; 3. To ensure a comprehensive programme is implemented before the highway is completed; 4. To make management sufficiently flexible so that modifications can easily be made to accommodate the conditions of the settlement of native land claims; and 5. To be receptive to the findings of research activity pertaining to the northern environment. (Au)

S-10987
Faulkner announces northern Yukon land withdrawal / Canada. DIAND.
[Ottawa : Indian and Northern Affairs, 1978].
[10]p. : maps ; 28cm.
(dis 111317)
ACU

On July 16, 1978 the initial step towards the creation of Canada's first national wilderness park was taken with the withdrawal of some 15,000 square miles of the northern portion of the Yukon from new development. The region includes critical wildlife habitat and is perhaps the only area where Arctic tundra, alpine tundra and boreal forest can be observed in their natural condition in the same location. (ASTIS)

S-14079
An outdoor recreational land use and activities survey of Yellowknife residents / Dallard Runge Consulting Ltd. Canada. DIAND. N.W.T. Yellowknife, N.W.T.
[Toronto : Dallard Runge Consulting Ltd.], 1978.
[86]p. : tables, maps (part. fold.) ; 28cm.
Appendices.
Prepared for the Dept. of Indian Affairs and Northern Development in cooperation with the Government of the Northwest Territories and the city of Yellowknife.
ACU

..., the goal was to determine the outdoor recreational activity patterns of Yellowknife residents in this unique northern community. .... The city was divided into twenty-four separate areas and a systematic sample from a random start, taking each fourth dwelling unit was drawn. ... Of the 735 units in the sample, approximately 4% were vacant at the time of the survey and 9% of the occupants in the remaining units refused to participate. Information was obtained on 644 of the units providing a 22% sample of Yellowknife households. ... (Au)

S-21105
A comprehensive study of past and potential land use in Area "A", proposed Tuktoyaktuk land freeze : major findings / Interdisciplinary Systems Ltd. Canada. DIAND.
[Ottawa : Indian and Northern Affairs], 1977.
ix, 49p. : maps ; 28cm.
Title varies: Major findings comprehensive study proposed Tuktoyaktuk land freeze.
Prepared for Dept. of Indian Affairs and Northern Development.
Bibliography: p.38-49.
ACU

This report identifies eight areas regarded as critical in maintaining present use of Area "A" fish and wildlife resources, and an additional seven areas regarded as critical in maintaining potential resource harvest opportunities in Area "A". Many potentials for adverse impact from oil and gas exploration and development activities within these areas are identified. For the most part, these impacts are regarded as mitigable through existing land-use regulations if appropriate operating conditions are applied to land-use permits and if enforcement of operating conditions is adequate. ... (Au)

S-37656
Northern resources : a study of constraints, conflicts, and alternatives / Dickinson, D.M.
(Northern transitions. Vol. 1. Northern resource and land use policy study / Edited by E.B. Peterson and J.B. Wright. - Ottawa : Canadian Arctic Resources Committee, [c1978], p. 251-316, maps)
References.
ACU

This paper explains the principles of a balanced land management system suitable for use in northern environments. It is demonstrated in three case studies - Bear Rock-Brackett Lake, N.W.T., Baker Lake-Chesterfield Inlet, N.W.T., and Pelly-Macmillan Rivers, Y.T. - involving different types of northern environments and several competing resource development proposals for each area. (ASTIS)

S-42250
A study of wild life, land-use, and social interests in the Bathurst Peninsula region, Northwest Territories / Canada. DIAND. Speller, S.W. Barry, T.W. Jacobson, B.
s.l. : [Canadian Wildlife Service], 1975.
96 leaves : 14 maps each 70x105cm fold. to 29x22cm ; 28cm.
References: p.62-65.
Appendices: - The cultural and economic value to the residents of Tuktoyaktuk of wildlife of the Bathurst Peninsula region / by Thomas W. Barry and Billy Jacobson. - Elf Oil geophysical survey land use applications to DIAND. - Canadian Wildlife Service guidelines for aircraft activity in the vicinity of rare and endangered avian species.
ACGO

... The report describes the wildlife resources of the area and the possible consequences of oil exploration activities. It also recommends supplementary operating conditions to be attached to land use permits governing human activity in arbitrarily defined "Critical" and "Sensitive" wildlife zones in the region. These zones are outlined on the accompanying maps and their wildlife values described in the text. (Au)

S-42269
A comprehensive study of past and potential land use in Area "A", proposed Tuktoyaktuk land freeze / Interdisciplinary Systems Ltd. England, R.E. Canada. Northern Environmental Protection and Renewable Resources Branch.
Winnipeg : Interdisciplinary Systems, 1977.
3v. : ill., maps ; 28cm.
Appendices.
References.
ACGO

... this report provides a ... basis for regulating industrial land use in area "A" .... The objective of this study was simply to identify the potential for conflict in area "A" should exploration and development activity be permitted, and suggest means whereby adverse impact on traditional pursuits might be allayed or averted. ... The appendix ... contains much of the background information on biological characteristics and traditional land use used in developing the main study report. ... (Au)

S-45977
Community planning and development in Canada's Northwest Territories / Gerein, H.J.F.
[Yellowknife] : Government of the N.W.T. in co-operation with Canada Mortgage and Housing Corp. and DIAND, 1980.
175p. : ill., maps, photos. (part. col.) ; 24x30cm.
References: p.163-165.
ACU

It has been recognized that the approach to town planning and community building in the northern part of Canada requires unique approaches; (a) to meet the severe winter climatic conditions that are prevalent in the N.W.T. (b) to allow a high level of community input to planning and building. ... This report provides some understanding of the vast area and people being served, and outlines the current practices and approaches to community building in the N.W.T. It is not intended to be a comprehensive, technical report on northern planning, but rather an overview of existing efforts, both successful and experimental to provide better communities in the N.W.T. ... (Au)

S-52787
An Arctic challenge : America and Canada can make conservation history. Will they? / Deane, J.G.
(Living wilderness, v. 41, no.140, Jan./Mar. 1978, p. 15-17, map)
ACU

This editorial describes proposals to create an international wildlife refuge in northeastern Alaska and the Yukon to protect the supporting range of the Porcupine caribou herd. (ASTIS)

S-53481
Destruction by insignificant increments / Canadian Arctic Resources Committee.
[Ottawa] : Canadian Arctic Resources Committee, 1979.
12p. : maps, photos. ; 28cm.
(Northern perspectives, v. 7, no. 6, 1979)
Includes: - Arctic offshore developments : the circumpolar challenge / D.J. Gamble. - An environmental research and management strategy for the eastern arctic region / Ian G. Stirling, Ron R. Wallace, [and] Gerry T. Glazier.
ACU, NFSMO

These articles comment on the federal government's uncoordinated reaction to the proliferation of industrial proposals for Arctic waters. (ASTIS)

S-59447
Sauvegardons notre patrimoine naturel arctique [Safeguarding our natural Arctic heritage] / Beaubien, P. Canada. Parks Canada [Illustrator].
(North/Nord, v. 27, no. 2, Summer 1980, p. 44-51, maps, col. photos.)
Text in French.
ACU

This article describes briefly each of six sites proposed by Parks Canada for designation as national parks in the Canadian Arctic: Wager Bay, areas on Axel Heiberg and Ellesmere islands, Bathurst Inlet, parts of Banks Island, the northern coastal area of the Yukon Territory including Herschel Island, and the Tuktoyaktuk pingos. (ASTIS)

S-63495
Firth River area : new park resource analysis report / MacNeil, I.K.
[Ottawa] : Indian and Northern Affairs, Parks Canada, [1977].
23p. : ill., maps ; 23x36cm.
Cover title.
SSU

Objective: To conduct a preliminary resource analysis within a natural area of Canadian significance in the northwestern Yukon, in order to assess its potential as a National Park. Conclusion: The area extending from the Old Crow Flats to the Arctic Coast offers outstanding representation of the natural heritage values of the Northern Yukon ... and would qualify for inclusion in the National Parks System. (Au)

S-69892
Land use for resource harvesting on Victoria Island, Northwest Territories, 1980 / Jacobson, R. Polar Gas Limited.
[Toronto : Polar Gas], 1980.
iv, 70p. : figures, 8 fold. maps ; 28cm.
(Socio-economic program - Polar Gas Limited)
Prepared for Polar Gas Project.
References.
ACU, OON

The object of this study is to identify and describe all important land use areas on Victoria Island, including adjacent marine areas. ... The study concentrates on land use for current resource harvesting activities, but also includes a perspective on historical land use patterns and possible future patterns. ... the study is designed to answer questions concerning where, when, and what Victoria Island residents hunt, trap and fish. ... [and] the relative importance of specific areas and activities to each community. The study was designed to collect data both from public sources and from representative resource harvesters in each settlement. ... (Au)

S-73024
Wilderness area : legislative alternatives for the establishment of a wilderness area in the northern Yukon / Hunt, C.D. Miller, R. Tingley, D.
Ottawa : Canadian Arctic Resources Committee, [1979].
130p. ill., maps ; 28cm.
(Yukon series, research monograph 2)
ISBN 0-919996-11-6
Cover title: Northern Yukon wilderness area.
References.
ACU

... The objective of this study is to review existing legislation in Canada under which lands in the northern Yukon might be protected for conservation or related purposes. Specific problems of concern in the northern Yukon, such as native rights and mineral potential, receive attention in the legislative review. ... It begins with a brief background statement, which reviews the natural resources found in the study area, and the recent history of proposals made in relation to the area. A discussion of the notion of "wilderness" follows, drawing upon legislative and administrative experience from jurisdictions in Canada and the United States. Legislative mechanisms for the establishment of conservation areas in northern Canada are critically evaluated .... Existing and potential mineral claims in the study area, and their ramifications for a wilderness area, are discussed. Recent developments in the United States with regard to the Arctic Wildlife Range are analyzed, and potential problems associated with an international caribou treaty or other treaties are touched upon. The report concludes with recommendations. ... (Au)

S-78379
Yellowknife, capital of the Northwest Territories : city guide / Yellowknife, N.W.T. Chamber of Commerce.
[Yellowknife : Chamber of Commerce, 198-?].
30p. : ill. (part. col.) ; 21cm.
ACU

Describes historical, geographic, social and economic aspects of Yellowknife. Provides general information and lists of government and private services available in the community. (NPB)

S-85570
Recreational activity preferences of resident and tourist campers in the Yellowknife region / Jackson, E.L. Schinkel, D.R.
(Canadian geographer, v. 25, no. 4, winter 1981, p. 350-364, ill.)
References.
ACU

Tourism may represent an important component of regional economic development strategies, and geographic research on recreation behaviour can provide data, or potential planning utility, about recreational activity preferences. The results of a campground survey in the Yellowknife region showed that residents and tourists differed in recreational activity preferences but not in recreational satisfaction. The residence variable has implications beyond the superficial spatial separation of residential origin and recreational destination and can guide choices between natural environmental protection and facility development in recreational resource management. (Au)

S-108596
Land use planning, regional planning, and environmental assessment : a preliminary review of issues / Richardson (N.H.) Consulting.
Richardson, N.H. Canada. Federal Environmental Assessment Review Office. Environmental Assessment Panel. Beaufort Sea [Sponsor].
Toronto : N.H. Richardson Consulting, 1982.
15 p. ; 28 cm.
(Beaufort E.I.S. technical specialist report)
Appendices.
References.
ACU

The Environmental Impact Statement ... Guidelines require the proponent to deal with a number of matters relating to the use of land, such as the effects of possible developments on housing and community services, transportation facilities, community land needs, and current or projected local land use plans .... The Guidelines do not, however, require the proponent to examine the question of land use planning or regional planning as such, and the EIS confines itself to a general statement of support for government planning initiatives .... The purpose of this paper is to outline briefly the more important of these issues in the context of a similarly brief sketch of the background of past and current planning initiatives in the north. It is merely a preliminary review intended to draw the attention of the Panel to matters which it may wish to examine in greater detail. (Au)

S-118389
Nahanni National Park Reserve newsletter / Canada. Parks Canada.
No. 1 (Feb. 1983)- .
Ottawa : Parks Canada, 1983- .
ill. ; 38 cm.
Issued monthly (?).
ACU

Parks Canada is beginning a program to develop a Management Plan for Nahanni National Park Reserve. When completed, the Management Plan will guide the development, management and operation of Nahanni for a period of ten to fifteen years. ... This newsletter has been prepared to provide you with information about: (1) Parks Canada's planning process for national parks and how you can participate in this process; (2) the Park Purpose and Objectives Statement which has been prepared for Nahanni National Park Reserve; (3) the National Parks Zoning System and its present application in Nahanni; (4) Parks Canada's legislation and policies of direct applicability to Nahanni, summarized as proposed Planning Principles which will guide the Planning Team in preparing the Plan; (5) a brief description of Nahanni's regional setting, natural resources, history, existing park development and use, and (6) those issues identified by the Planning Team to date which will be addressed in Nahanni's Management Plan. (Au)

S-135518
Pingos of Tuktoyaktuk - a natural site of Canadian significance.
Ottawa : Parks Canada, 1978.
9 p. : ill., figures ; 28 cm.
ACU

Natural Sites of Canadian Significance are sites which have been identified for preservation in a natural state and are considered to be outstanding, exceptional, unique or rare. ... Parks Canada has been working to identify sites containing these natural features. One of the sites identified in the Arctic is the pingos of Tuktoyaktuk. It could be protected as a National Landmark. In addition to this small site, Parks Canada has identified five large Natural Areas of Canadian Significance, considered to be representative of different Arctic landscapes. These areas are also worthy of consideration for new parks. They are: 1. Bathurst Inlet, 2. Wager Bay, 3. Northern Yukon, 4. Banks Island, 5. Ellesmere and Axel Heiberg Islands. (Au)

S-135534
Northern Yukon - natural area of Canadian significance.
Ottawa : Parks Canada, 1978.
13 p. : ill., figures ; 28 cm.
ACU

Natural Areas of Canadian Significance are areas which have been identified for preservation in a natural state and are representative of the major natural environments of Canada. ... To identify the variety of Canada's landscapes, Parks Canada has divided the country into 48 natural regions. It is the aim of Parks Canada to set aside, in each of the 48 regions, an area of outstanding scenery or distinct features, that best portrays the region. So far only 18 of the natural regions have representative parks. Of the 30 regions without parks, 15 are at least partly in the Yukon and the Northwest Territories. Parks Canada, in its effort to further the completion of the national system of parks, has recently identified 6 of the more impressive natural heritage areas worthy of consideration for new parks. They are: 1.

Northern Yukon, 2. Wager Bay, 3. Bathurst Inlet, 4. Banks Island, 5. Ellesmere and Axel Heiberg Islands, 6. Pingos of Tuktoyaktuk. [This pamphlet describes the significant natural features of the northern Yukon.] (Au)

S-135569
Banks Island - a natural area of Canadian significance.
Ottawa : Parks Canada, 1978.
13 p. : ill., figures ; 28 cm.
ACU

Natural Areas of Canadian Significance are areas which have been identified for preservation in a natural state and are representative of the major natural environments of Canada. ... To identify the variety of Canada's landscapes, Parks Canada has divided the country into 48 natural regions. It is the aim of Parks Canada to set aside, in each of the 48 regions, an area of outstanding scenery or distinct features, that best portrays the region. So far only 18 of the natural regions have representative parks. Of the 30 regions without parks, 15 are at least partly in the Yukon and the Northwest Territories. Parks Canada, in its effort to further the completion of the national system of parks, has recently identified 6 of the more impressive natural heritage areas worthy of consideration for new parks. They are: 1. Banks Island, 2. Bathurst Inlet, 3. Northern Yukon, 4. Ellesmere and Axel Heiberg Islands, 5. Wager Bay, 6. Pingos of Tuktoyaktuk. [This pamphlet describes the significant natural features of Banks Island.] (Au)

S-137243
Archives of the City of Yellowknife / Welch, E.
[Yellowknife, N.W.T.] : Prince of Wales Heritage Centre, N.W.T. Archives, 1983.
[i], 88 p. ; 28 cm.
(Sources for N.W.T. history, no. 3)
Cover title: City of Yellowknife records, Northwest Territories Archives.
ACU

This publication is a catalogue of the early records of the city of Yellowknife beginning with Settlement Minute Copies 1940. Also included are lists of photographs and housing surveys, ordinances, business licences and miscellaneous papers. (ASTIS)

S-139513
Inuvik 25 years later / Komaromi, G.J.
(North/Nord, v. 30, no. 2, Spring 1984, p. 44-45, ill.)
ACU

... From July 11-18, 1983, Inuvik celebrated its 25th birthday, the town's coming of age. Today Inuvik is not only a centre of administration, it is also a centre of administration, it is also a centre of commerce serving the western Arctic and the needs of the oil and gas industry. ... (Au)

See Also : C-14540, C-14559, L-27448, Q-63762, Q-116807, Q-118133, Q-118141, Q-118176, Q-122165, R-89834, T-2399, T-8400, T-9903, T-9911, T-10456, T-11193, T-11665, T-13323, T-13927, T-28223, T-63703, T-72079, T-77836, T-77879, T-77887, W-46230, W-79774

T - NATIVE PEOPLES - Except Archaeology.

T-2399
Sunrise on Mackenzie / Turner, D.
[Saanichton, B.C.] : Hancock House, [c1977].
175p. ; 22cm.
ISBN 0-919654-98-3
Fascimile of Treaty 11 and pertinent parts of Treaty 8.
ACU

Presents the personal views of the author on the Berger hearings, native land claims, the proposed construction of the pipeline and its environmental effects, and the dissension among the Indians themselves as to what they really want from the government. The author also suggests measures that the federal departments could use to deal with the problems of the native peoples in the District of Mackenzie. (ASTIS)

T-6050
Impact of oil exploration work on an Inuit community / Kupfer, G. Hobart, C.W.
(Arctic anthropology, v. 15, no. 1, 1978, p. 58-67, tables)
References
ACU

The impact of oil exploration work by Gulf Oil Canada in the MacKenzie Delta on the Inuit people of Coppermine is analysed. Various segments of the community (i.e., the male workers, wives and children) and non-Inuit members of the community were interviewed in order to assess the effect of the work on the economy, social and family life and health of the community. (Au)

T-7951
The Report of the Mackenzie Valley Pipeline Inquiry, Volume One : summary and critique of the final two chapters and epilogue / McConnell, W.H.
(Musk-ox, no. 21, 1978, p. 18-25)
References.
Review of document number 64025.
ACU

Judge Berger uses the term "self-determination" in the sense that as descendants of the original inhabitants of Canada, the Dene, Inuit and Metis people enjoy the right to decide upon their future governmental structures themselves in conformity with their traditional cultures. ... The educational values emphasized in the Report might relegate natives to certain occupations, unfitting them for others, and thereby deprive them of freedom of choice. This and certain other aspects of the Report, including a long residency requirement for voting, might detract unacceptably from the mobility and political rights inherent in broader Canadian citizenship. (Au)

T-7960
The Report of the Mackenzie Valley Pipeline Inquiry, Volume Two : a critique / McConnell, W.H.
(Musk-ox, no. 21, 1978, p. 26-27)
Review of document number 64025.
ACU

In his Report of the Mackenzie Valley Pipeline Inquiry: Volume Two, Mr. Justice Berger criticizes the present Territorial Government as a "white-dominated" structure. ... In some cases, the implications of his argument are not sufficiently brought out and all of the difficulties are not confronted. ... (Au)

T-8400
Proposed agreement on objectives between the aboriginal peoples of the Mackenzie corridor and the Government of Canada for the entrenchment of rights to "Our Land, Our Culture, Our Future" / Metis Association of the Northwest Territories.
[Yellowknife] : Metis Association of the Northwest Territories, 1977.
1v. (unpaged) : ill. ; 22cm.
Cover title : Our land, our culture, our future.
ACU

The Metis Association presents recommendations for a new arrangement between the Government of Canada and the native peoples of the Mackenzie Corridor concerning native land claims. (ASTIS)

T-9903
COPE-Government Working Group joint position paper on wildlife / Committee for Original Peoples' Entitlement. Canada. Canada. DIAND.
[Ottawa : Dept. of Indian and Northern Affairs ?], 1977.
7 leaves ; 28cm.
ACU

This paper presents: the principles of environmental and wildlife protection, the harvesting rights of the Inuit, the management of wildlife, and the establishment of planning agencies to implement the goals outlined in the position paper. (ASTIS)

T-9911
Inuvialuit land rights : a commentary / Hunt, C.D.
(Northern perspectives, v. 6, no. 4, 1978, p. 1-4)
ACU, NFSMO

The joint position paper recently announced by the Committee for Original Peoples' Entitlement (COPE) and the Government of Canada marks a significant point in the resolution of native land claims in northern Canada. ... This paper analyzes what effect the position paper, if legislated, may have on policies, practices, and developments in the Northwest Territories. Primary focus is upon elements of the position paper which are particularly critical to future land use and management. (Au)

T-10456
The COPE/Government Working Group joint position paper on the Inuvialuit land rights claim = COPELU/Govermatlu sanigaani savaktingit tamakmik sivok-kiotaat makpigak "Inuvialuit nunangat" okausigiga-mitjong / Committee for Original Peoples' Entitlement. Canada. Canada. DIAND.
[Ottawa : DIAND?, 1977?].
1v, 106 leaves : maps : 28cm.
ACU

After COPE's proposal for the land rights claim, Inuvialuit Nunangat, was presented to the Government on May 13, 1977, there was a breakdown in discussions between the two parties. Representatives of each formed the Working Group to seek a common position. This paper is the result of the Working Group's efforts, and forms the basis for a submission to cabinet for an Agreement in Principle. (ASTIS)

T-11193
Resisting pipeline imperialism : the struggle for self-determination in the Canadian north / Jackson, T.
(A special issue on the north. Alternatives, v. 7, no. 4, Autumn 1978, p. 40-51)
References.
ACU

Reviews the background of the proposed Mackenzie Valley Pipeline, and the Berger hearings with particular emphasis on the native land claims of the Dene. The author traces the Dene's relations with the government, the impact of the pipeline on their social and economic conditions, and the the support the Dene received from concerned non-native organizations. (ASTIS)

T-11258
Kalvak / Sweetman, R.
(Arctic in colour, v. 6, no. 2, 1978, p. 11, col. photo.)
ACU

Brief biographical account of Helen Kalvak and her artwork. (ASTIS)

T-11517
Sikyea's northern fashions / Verge, P.
(Arctic in colour, v. 6, no. 2, 1978, p. 39-43, col. photos.)
ACU

The Northern Native Fashions is a project headed by Tim Sikyea which aims to incorporate native craft work into high fashion garments and market them on a national, perhaps even international scale. (ASTIS)

T-11665
COPE and Federal Government sign agreement-in-principle on COPE claim / Canada. DIAND. Committee for Original Peoples' Entitlement. Canada.
[Ottawa : Indian and Northern Affairs, 1978].
[18]p. : maps ; 28cm.
(Communique - Canada. DIAND, 1-78 49)
ACU

Presents a summary of the Agreement-in-Principle concerning Inuvialiut land claims, and the chronology of events leading up to the Agreement. (ASTIS)

T-12521
Multilingualism of natives in the Mackenzie district : an analysis of data from the Northern Manpower Survey Program / Barrados, M. Burd Van Dine, M. Canada. Northern Social Research Division [Sponsor]. Canada. Northern Manpower Survey Program.
[Ottawa : Indian and Northern Affairs, 1977].
42 leaves : map, tables ; 28cm.
Cover title.
ACU

... This report analyses the diversity of language use by the native population surveyed in the 1970 Northern Manpower Survey Program. Through an examination of multilingualism and language use, this report investigates the pattern of native language retention in this multilingual environment. ... (Au)

T-13323
Inuvialuit land rights settlement agreement in principle = Reglement de la revendication fonciare des inuvialuit entente de principe = Inuvialuit nunangata san-naiyaota sivol-lek ilogaagun / Committee for Original Peoples' Entitlement. Canada. Canada. DIAND.
[Ottawa : Indian and Northern Affairs ?], 1978.
180 leaves : maps ; 28cm.
Agreement between the Committee for Original Peoples' Entitlement representing the Inuvialuit of the Western Arctic region, and the Government of Canada represented by the Minister of Indian Affairs and Northern

Development.
ACU

Presents the land rights settlement between The Committee for Original Peoples' Entitlement and the Government of Canada. Areas of agreement include citizens' rights and programs, selection of Inuvialuit lands, land management, wildlife protection, financial compensation. (ASTIS)

T-13927
Complete text of : COPE/Federal Government joint position paper, July 14, 1978.
Agreement-in-principle - signed October 31, 1978. Transcript of debate in Legislative Assembly of the Northwest Territories, October 27, 1978 / Committee for Original Peoples' Entitlement. Canada. Canada. DIAND.
[Ottawa : Dept. of Indian Affairs and Northern Development?, 1978].
96p. : maps ; 28cm.
Cover title.
ACU

Contains the complete text of COPE/Government joint position paper on Inuvialuit land and rights claim, Inuvialuit land rights settlement - agreement-in-principle and extracts from the debates in Legislative Assembly of the Northwest Territories. (ASTIS)

T-15121
Application of a theory of games to the transitional Eskimo culture / Glassford, R.G.
New York : Arno Press, 1976 [c1971].
v, 340p. : ill., figures, tables, map ; 24cm.
(Studies in play and games)
ISBN 0-405-07920-6
Thesis (Ph.D.) - University of Illinois at Urbana-Champaign, 1970.
Bibliography: p.258-272.
ACU

... The purpose of this study is to ascertain the games of a culture group which is currently undergoing transition as well as to analyze the organization patterns of these games and to classify them according to a model based upon a theory of games. ... The central problem of this investigation is the determination of the games which the Canadian Eskimo preferred to play between the ages of ten and twenty years, and to examine the organizational patterns of these preferred activities in order to assess what changes, if any, have occurred with relation to this pattern over the last three generations. ... (Au)

T-15512
The socio-economic importance of wildlife resource utilization in the southern Beaufort Sea / Brakel, W.D.
Victoria, B.C. : Beaufort Sea Project, 1977.
91p. : maps, tables ; 28cm.
(Technical report - Canada. Beaufort Sea Project, no. 32)
(APOA project no. 72 : Beaufort Sea Environmental Program. Report, no. 32)
Appendices.
References.
ACU, NFSMO

This study considers the socio-economic importance of fishes, beluga or white whales, seals, white fox and polar bears to Inuit, Metis and Indians living adjacent to the Beaufort Sea. Factors considered as 'socio-economically important' include the level and distribution of local and export sales, domestic uses of wildlife harvests, employment and income. ... (Au)

T-23647
Recognition of the Dene Nation through Dene government.
[S.l. : s.n., 1978?].
[4]p. : ill. ; 28cm.
At head of table : For discussion.
ACU

Discusses the basis for Dene self-government, areas of jurisdiction, traditional federal government responsibilities and special aboriginal powers. (ASTIS)

T-24171
Vitamin C in the diet of Inuit hunters from Holman, N.W.T. / Geraci, J.R. Smith, T.G.
(Arctic, v. 32, no. 2, June 1979, p. 135-139, table)
References.
ACU, NFSMO

During the spring and summer months the diet of three Inuit families living in a seal hunting camp south of Holman, N.W.T., was studied. A total of 13 food items including the most commonly eaten mammal, bird and plant species were analysed for Vitamin C in both the raw and cooked state. We document a daily intake of ascorbic acid of between 11 and 118 mg and estimate a mean dose of at least 30 mg. ... (Au)

T-28223
The Dene land settlement and rights / Erasmus, C.
(Northian, v. 13, no. 3, Autumn 1978, p. 27-33)
References.
ACU

Presents a historical look at the Dene, their struggle for self determination and native rights. Briefly discusses Treaty no.11 signed by the Dene in 1921. Includes the text of the statement of rights adopted by the General Assembly of the Indian Brotherhood and Metis Association of N.W.T. meeting at Fort Simpson in July, 1975. (ASTIS)

T-35602
How Inuit trapper-hunters make ends meet / Smith, T.G.
(Canadian geographic, v. 99, no. 3, Dec. 1979/Jan. 1980, p. 56-61, ill., map, photos. (part. col.))
ACU

Summer and winter, the Inuit of Holman in western Victoria Island still depend on the natural bounty of their harsh land. Arctic char caribou and seal provide food, while the pelts of foxes and seals provide good cash income. ... (Au)

T-42528
Chipewyan marriage / Sharp, H.S.
Ottawa : National Museums of Canada, 1979.
v, 108p. : ill., figures ; 28cm.
(Paper - Canada. National Museum of Man. Ethnology Service, no. 58)
(Mercury series)
References.
ACU

This work is an examination of the operation of the kinship system of the Mission Chipewyan. It examines the utilization of kinship terms by this group of Caribou-Eater Chipewyan and the conflict inherent within their system. The sources of conflict are derived from the Chipewyan utilization of both relative age and genealogical position as a means of categorizing kin as well as the overlap in functions of the kindred and the hunting unit. Analysis of marriage and the role of affines is included and the non-age-ranked ties between siblings-in-law are shown to be crucial to group formation in this society. (Au)

T-43974
The Hare Indians and their world / Hara, H.S.
Ottawa : National Museums of Canada, 1980.
xvi, 314p. : ill., figures, plates, tables ; 28cm.
(Paper - Canada. National Museum of Man. Ethnology Service, no. 63)
(Mercury series)
"A Diamond Jenness memorial volume."
Bibliography: p.295-301.
ACU, SSU

This ethnographic report ... describes the life of the Hare Indians, a group of Northern Athapaskan speakers hunting and gathering in the Fort Good Hope game area in the Mackenzie River basin of northern Canada. The data were collected during fieldwork carried out between June and September, 1961, and between June, 1962 and January, 1963, and also through library research of the documented literature. It is my intention to clarify how the Hare Indians themselves view their own world and what it is to be a Hare person. This report was written in the years of 1963 and 1964 .... Since then, ethnographic and linguistic researches on the Hare Indians have been undertaken by Joel S. Savishinsky and others. Since their findings are not incorporated in this monograph, it should be read as one of the historical documents depicting the people in the early 1960s. (Au)

T-46191
Inuit employment by Gulf Oil Canada : assessment and impact on Coppermine, 1972-73 / Hobart, C.W. Kupfer, G.
Edmonton : Westrede Institute, [1973].
134p. ; 28cm.
Appendices.
ACGO, ACU

This report presents the results of an impact study assessing the consequences of the employment of Inuit men from Coppermine, N.W.T. by Gulf Oil Canada and its contractors in the Mackenzie River Delta during the period from November 1, 1972 until May 1, 1973. ... This report assesses the effects of the Inuit employment program on the Gulf Oil operation, and the social and economic impact of the work and wages on the settlement, and the lives of the Inuit workers and their families. ... because of the number of men employed in the program, and the substantial financial input into the community, the potential for impact on the community was very great .... This was also a unique project in that a considerable number of men from a small Inuit settlement in the Fort Smith Region moved to a distant work site in the Inuvik Region without going through or dealing with other N.W.T. settlements. ... this project may provide guidelines for the continued employment of the Northern native peoples. ... (Au)

T-47201
Dene Nation newsletter.
v.1., no.1 (June, 1980)-
Yellowknife : The Dene Nation, 1980- .
ACU

... This newsletter is the first of a regular series which will be sent from the national office in Yellowknife to inform the chiefs, councillors and people in every community in the Dene Nation of what your elected leaders and staff are doing. ... (Au)

T-62286
Kupfer-Eskimo-Siedlungen auf der Banks-Insel, Nordwest-Territorien, Kanada = [Copper Eskimo settlements on Banks Island, N.W.T., Canada] / Hahn, J.
(Kanada und das Nordpolargebiet, [papers] / Symposium on Canada and the Northern Polar Regions, Trier, G.F.R., 30 October - 1 November, 1976. Hrsg. von Ludger Muller-Wille [und] Hellmut Schroeder-Lanz. Trierer Geographische Studien, Sonderheft 2, p. 62-74, figures, tables)
English summary.
References.
Text in German.
ACU

During the research ... on Banks Island new campsites of Copper Eskimo were discovered .... Besides tent rings, stone depots or caches and graves, bones of muskoxen were mainly found. Wooden, iron and bronze pieces imply that these were Eskimo who had found a source of raw materials from the research ship abandoned in 1851 by McClure on the northern part of the island. The archaeological investigations enhance the known ethnological data pertaining to technology and settlement pattern of the Copper Eskimo. (Au)

T-63657
The individual in northern Dene thought and communication : a study in sharing and diversity / Christian, J. Gardner, P.M.
Ottawa : National Museums of Canada, 1977.
vi, 419p. : ill., figures, photos., tables ; 28cm.
(Paper - Canada. National Museum of Man. Ethnology Service, no. 35)
(Mercury series)
References.
ACU, SSU

... Peoples of the Subarctic, particularly the so-called 'Slavey', have long been noted for their quiet self-reliance, their emphasis on the value of maintaining individual autonomy. We have reason to suppose that their individualism is expressed in the conceptual realm as well as the social, making their case of considerable theoretical importance. What is more, their characteristic behavior would be expected to make factors bearing on the development of shared concepts and beliefs relatively visible and isolable. This volume reports some of the prelimianry findings of a collaborative study of thought and communication among members of one Mackenzie drainage Dene community. Subprojects, on aspects of communication and learning and on shared and diverse classifications and processes having to do with trapping, fishing and exploitation of moose, are reported .... Several sociolinguistic, ethnosemantic, and general linguistic and ethnographic field methods were employed and various sampling procedures. (Au)

T-63703
Dene Nation - the colony within / Watkins, M. [Editor]. University League for Social Reform.
Toronto : University of Toronto Press, [1977].
xii, 189p. : figures, maps, tables ; 23cm.
ISBN 0-8020-2264-2
References.
ACU, SSU

The Indian people of the Mackenzie district ... today face the final onslaught of 'progress' in the form of applications to build a natural gas pipeline down the Mackenzie Valley through their homeland. ... the Dene are struggling mightily against these proposals. In the process, they are greatly strengthening their identity as a people and are once again asserting their rights as a nation. ... The government of Canada established the Mackenzie Valley Pipeline Inquiry under Justice Thomas R. Berger ... to consider the separate proposals of the applicants, Canadian Arctic Gas Pipeline Ltd ... and Foothills Pipe Lines Ltd, to build pipelines up the Mackenzie Valley. ... Either pipeline would pass through lands they have occupied and used since time immemorial. The land claim of the Dene is for these lands. ... This book is based in large part on presentations made to the Berger Inquiry by the Dene themselves and by others on their behalf. ... (Au)

T-66087
Some recent developments in subarctic culture history and ethnohistory : comments / Slobodin, R.
(Papers - Symposium on Reconsiderations of Aboriginal Social Organization in the North American Subarctic, Los Angeles, 14-18 November, 1978. Edited by Shepard Krech. Arctic anthropology, v. 17, no. 2, 1980, p. 52-59)
References.
ACU

The author comments on the development of the subarctic sociocultural research during the past 15 or 20 years. Many of the notable researchers in this field are discussed. (ASTIS)

T-69817
Dietary habits and nutritional base of native populations of the Northwest Territories / Schaefer, O. Steckle, J. N.W.T. Science Advisory Board [Sponsor].
[Yellowknife : Department of Information, Government of the Northwest Territories, 1980].
iv, 38p. : tables ; 28cm.
ISBN 0-920908-03-9
References.
ACU

... We shall ... review ... not only facts known in regard to the nutritional base of native people in the N.W.T. in aboriginal and changes experienced in transitional times, and effects observed on their health, but also discuss availability and nutritional value of traditional local food resources as well as accessibility and cost of imported alternatives and recommend actions to improve optimal nutrition at reasonable cost from use of local and/or imported sources. All native population groups in Northern Canada lived off hunting, fishing, and to a minor degree, food gathering in aboriginal times. ... Although some groups of both Inuit ... and Dene ... shared their predominant reliance on migrating caribou herds, marked differences in nutrition habits as well as different acculturation histories warrant separate discussion of the main native population groups. (Au)

T-72079
Native settlements and native rights : a comparison of the Alaska Native Settlement, the James Bay Indian/Inuit Settlement, and the western Canadian Inuit settlement / Frideres, J.S.
(Canadian journal of native studies, v. 1, no. 1, 1981, p. 59-88, maps)
References.
ACU

The author describes each of three recent agreements between governments and northern native peoples, the Alaska Native Claims Settlement Act of 1971, the James Bay Settlement, the COPE Agreement still in limbo. The agreements are compared in several areas, and against some potential demands from other groups researching land rights in preparation for the negotiation of claims. (Au)

T-72826
Atta / Committee for Original Peoples' Entitlement.
no.1 (June, 1981)- .
Inuvik, N.W.T. : Committee for Original Peoples' Entitlement, 1981- .
28cm.
ACU

This publication is the COPE monthly newsletter and contains up-to-date information concerning matters of interest to residents in the District of Mackenzie, and on-going reports of COPE's projects. (ASTIS)

T-77380
Multilingualism of natives in the Mackenzie District : an analysis of data from the Northern Manpower Survey Program / Barrados, M. Burd Van Dine, M. Canada. Northern Social Research Division [Sponsor].
[Ottawa] : Dept. of Sociology, Carleton University, [1977].
42p. : ill., tables ; 28cm.
ACU

The Mackenzie District is a multilingual area. There are six major language groups - Dogrib, Slave, Chipewyan, Loucheux, Eskimo and English. ... Language is a significant component of culture. The number of languages spoken and the pattern of language use provides an important indication of an individual's contact and familiarity with different cultures. The ability to speak another language, however, does not imply assimilation or identification with that language's cultural group. In a multilingual area the acquisition of the dominant language is only a prerequisite for assimilation and not necessarily part of that process. In this way a study of multilingualism and language use provides the ground work for studies of indigenous culture and language loss. ... This report presents the analysis of language use in four parts. The first ... presents an overview of multilingualism for the entire N.W.T. It analyses data presented in the published summary tables from the Northern Manpower Survey Program. The second section examines in greater detail the language diversity of different linguistic groups in the Mackenzie District. The third ... analyses the proportion of each language group retaining its mother tongue as the language most often used in the home. These findings were examined for variations by region of residence, age and education of the respondents. A final section presents data on the loss of native languages resulting from the penetration of English into the language groups. (Au)

T-77836
The Dene - land and unity for the native people of the Mackenzie Valley : a statement of rights / McCullum, H. McCullum, K.
Yellowknife : the Dene of the N.W.T., 1976.
14p. : ill., map ; 23cm.
Document not seen by ASTIS.
ACU

Describes the Dene people and their land claims. Includes the agreement-in-principle. (NPB)

T-77879
Dene Rights : supporting research and documents.
[s.l. : s.n.], 1976- .
9v. : illus., maps.
Collected research papers and documentation in support of Dene Rights position.
Vol. 2 not yet completed.
Document not seen by ASTIS.

DORD

T-77887
Agreement in principle between : the Dene Nation and Her Majesty the Queen, in right of Canada; whereas prior to the coming of Europeans, the Dene, the Aboriginal people of the Mackenzie Valley, have lived on their traditional lands since time immemorial ....
[Ottawa? : s.n.], 1976.
10, 6 leaves.
Document not seen by ASTIS.
DORD

T-79588
General and nutritional health in two Eskimo populations at different stages of acculturation / Schaefer, O. Timmermans, J.F.W. Eaton, R.D.P. Matthews, A.P.
(Canadian journal of public health, v. 71, no. 6, Nov. 1980, p. 397-405, figures, tables)
References.
ACU

Detailed nutritional health and occupational histories, clinical and laboratory examinations were obtained of 644 persons, mostly Eskimos (503) from: Arctic Bay, a small Eastern Arctic settlement still heavily dependent on traditional food resources and hunting activities and Inuvik, an urbanized center in the Western Arctic with little access to traditional food and lifestyles during the last generation. (Au)

T-80403
The dying art of the Slaveys / Bohnec, R.B.
(Synergy, v. 1, no. 2, winter 1982, p. 20-22, col. photos.)
ACU

This short article describes the embroidery, using moose-hair and porcupine quills, done by the Slaveys of the Mackenzie valley region. (ASTIS)

T-88145
Rotational employment of Coppermine Inuit men : effects and community perspectives / Hobart, Walsh and Associate, Consultants Ltd.
Ottawa : Environmental-Social Program, Northern Pipelines, 1980.
1v, 233p. : tables ; 28cm.
(ESCOM report, no. AI- 36)
References.
Also available in French under title: L'emploi par roulement chez les travailleurs inuit de Coppermine: ses effets et ses perspectives pour la communaute.
ACU, OORD, QMMNS

This report contains the results of a broad gauge study of the effects of employment by Gulf Oil Canada Ltd. on Coppermine, a predominantly Inuit settlement of about 800 people, located on the arctic coast about 600 km due north of Yellowknife. During the winters of 1972-73 through 1976-77 Gulf Oil employed between 54 and 90 of the men of this community in its oil exploration activity in the Mackenzie Delta. ... The following pages first present an overview of the methodology of the study, the background of the Coppermine settlement, and the origins and organization of the employment program. This is followed by a brief summary of the major findings of the study. (Au)

T-89575
The evolution and economy of the Delta community / Wolforth, J.
Ottawa : Northern Science Research Group, 1971.
xv, 163 p. : figures, tables ; 28 cm.
([Report] - Canada. Mackenzie Delta Research Project, no. 11)
Also available in French under title: L'evolution et l'economie de la communaute du Delta.
ACU

... historical analysis shows that agents of cultural contact - the trading company and mission churches - focussed the activities of native Eskimo and Indian peoples upon the Mackenzie Delta. ... In 1950, trapping camps were evenly distributed throughout the Mackenzie Delta .... After the building of the new planned settlement of Inuvik the numbers of trapping camps diminished .... For the mid-sixties, a grouping procedure used to dichotomize "serious" and "part-time" trappers shows that a large proportion of the latter maintained trapping camps. Analysis of employment in Inuvik also shows a divided commitment to land and town. High income and high status jobs were occupied predominantly by white transient workers since they required skills and levels of educational achievement possessed by few native people. Though native people of Metis origin showed some success in employment, most Eskimos and Indians occupied more menial jobs. A comparison of employment in government and non-government sectors indicates that native involvement in the latter was growing, many native people in both sectors shifted jobs frequently, or between jobs and land-based activities. The town economy like the land economy showed signs of adaptation to the dual allegiance felt by native people to land and town. (Au)

T-89893
Eskimos in a satellite society / Ferguson, J.
(Minority Canadians. Volume I : native peoples / Edited by J.L. Elliott. Scarborough, Ont. : Prentice-Hall, 1971, p. 15-28)
References.
ACU

The situation in the western Arctic in the mid-sixties, if allowed to continue unabated, would transform the Eskimo into an Arctic variety of the "hill-billy." Sporadic and minimal opportunities for wage labour have partially integrated the Eskimo into a cash economy. The traditional living-off-the-land life style is no longer feasible, but a modern alternative has not been satisfactorily developed. ... (Au)

T-89907
The Mackenzie Delta - its economic base and development : a preliminary study / Wolforth, J.
Ottawa : Northern Co-ordination and Research Centre, 1966?
viii, 85 p. : figures, tables ; 28 cm.
([Report] - Canada. Mackenzie Delta Research Project, no. 1)
References.
ACU

The Mackenzie Delta Research Project is an attempt to describe and analyse the social and economic factors related to development in the Mackenzie Delta. Particular emphasis is being directed toward the participation of the native people of the area, and the extent to which they are making effective adjustments to changes brought about by government and commercial expansion in the North. The individual studies within the project and the conclusions arising from them will be published in a series of reports. This study, MDRP 1, ... was undertaken to provide background data and analysis necessary for a general understanding of the economic realities of life in the Mackenzie Delta. ... (Au)

T-91154
A study of income distribution in the Mackenzie District of northern Canada / Kuo, C.-Y.
[Ottawa] : DIAND, 1972.
iii, 37 leaves : ill. ; 28 cm.
(North of 60)
References.
Document not seen by ASTIS.
OMMN5

Based on data collected in the Manpower Survey in 1969-70, Kuo examines income distribution by main ethnic groupings: Inuit, Metis, Whites, and between settlements. (LET)

T-91626
Moose-deer Island House people : a history of the native people of Fort Resolution / Smith, D.M.
Ottawa : National Museums of Canada, 1982.
ix, 202 p. : maps, figures, table ; 28 cm.
(Mercury series)
(Paper - Canada. National Museum of Man. Ethnology Service, no. 81)
Appendix.
References.
ACU

This work is a history of the native people of Fort Resolution, NWT, Canada, between the beginning of the fur trade on Great Slave Lake in 1786 and 1972. Aboriginal culture is considered to provide a base line for the historic changes discussed. The initial period of the fur trade and missionary activity ... is characterized by economic symbiosis and egalitarianism in the relations of native people and White institutions. The years between ca. 1890 and ca. 1950 saw ever-growing dependency on the goods and services of Eurocanadian institutions, to the point where they were ... perceived to be ... necessary to survival, and egalitarianism gave way to subordinate-superordate roles. Since 1950 ever growing difficulty in living off the land and ever growing dependence upon government agencies, resulted in the disappearance of virtually all self-determination from the lives of native people. (Au)

T-93491
Inuit employment in oil exploration / Hobart, C.
(Social sciences in Canada, v. 4, no. 1, 1976, p. 16-17)
ACU

This paper reviews Eskimo education in Canada with particular emphasis on vocational and occupational training course. The author feels the Eskimos are committed to a transition to a modern economy and assesses the various in institutions and programs designed to encourage that transition. (LET)

T-93513
Mackenzie Valley development : some implications for planners / Forth, T.G. Brown, I.R. Feeney, M.M. Parkins, J.D. Canada. Environmental-Social Program, Northern Pipelines [Sponsor].
[S.l. : s.n.], 1974.
xv, 300 p. : tables ; 28 cm.
(Report - Canada. Task Force on Northern Oil Development, no. 73- 45)
Appendices.
References.
ACU

... Eighteen communities were chosen to be included within the study area .... Twenty-three studies or surveys were selected ... in order to determine the nature of available research, the degree to which it related to current development, and the extent to which gaps in this research might be identified. ... [There is a focus] on ...Continuing and Special Education ... Recreation ... Child Welfare ... and Industry and Commerce .... In general these programs could be described as development-oriented and quite flexible, adapting to local conditions such as community size and the desires of residents. ... the relative growth rates of the Indian, Eskimo and Other population are shown ... Grouping of the responses to the attitude questions showed us that for the adults, education, welfare programs, and employment are considered the most important areas of concern ... The Fort Smith [Adult Vocational Training Centre] ... is described including a breakdown of current courses now offered. ... [The Hire-North] ... employment program related to construction of the Mackenzie Highway is examined .... There are really two major aspects ... on-the-job-training of equipment operators and the hand clearing of the highway right-of-way. ... The development of Labour Pools at Fort McPherson, Aklavik, and Cambridge Bay is described. Basically the Labour Pool concept provides for an employment officer to be hired by and to report to the Settlement Council. ... Where possible we have organized the report with material that is really of a reference nature included in ... [one of the seven appendices]. (Au)

T-94242
Banks Island : an area economic survey, 1965 / Usher, P.J.
Ottawa : DIAND, 1968.
xi, 91 p. : ill., figures, maps, tables ; 28 cm.
(A.E.S.R. report, no. 65/ 1)
Appendices.
Bibliography : p. 89-91.
ACU

This report is one of a series of Area Economic Surveys carried out ... to determine the basic for local economic and social progress in the Northwest Territories. Basically the surveys are intended to: 1) assess the renewable resources as to their ability to sustain the local population. 2) Determine the degree of exploitation of these resources and the efficiency of their use. 3) Investigate and explain the social and economic factors affecting resource utilization. 4) Recommend ways and means whereby the standard of living of the local people might be improved. ... The general pattern has been one of increasing populations, a drift away from the hinterlands to a few overcrowded settlements, a narrow renewable resource base, and insufficient alternative opportunities for earning a living. The old way of life became untenable, and nothing adquate replaced it. Welfare payments rose sharply to fill the gap but now threaten to become a permanent institution. Generally, there has been a failure to adjust both to changing resource harvesting opportunities and to the incipient development of a wage economy. ... (Au)

T-94420
Occupational aspirations of Mackenzie Delta students / Smith, D.G.
(Proceedings - Annual Conference of the Canadian Association for Indian and Eskimo Education, 7th, Ottawa, Ontario, 28-30 May, 1969, p. 68-75)
ACU

... In the North, there are several factions with fundamentally different opinions about what the school system should be doing. I call these "opinions", for although they have a validity in their own right, they are not always supported by realistic appreciations of what the state of affairs really is. ... [This paper discusses] the most commonly held opinions about the role and effects of education in the North and compare them with some detailed research findings from the Mackenzie River Delta. ... at least three factors are necessary for social development of Northern Native people - namely aspiration, motivation, and ability ... our Mackenzie Delta studies show two of our three factors (aspirations and motivations) to be very similar between Native and White students, and Professor MacArthur's intelligence testing programme in the Mackenzie Valley shows our third factor (general ability) to be very similar between Native and White students. ... Perhaps one of the chief impediments in this social system is a lack of realistic knowledge of Native people and their aspirations on the part of many White Outsiders .... (Au)

T-95524
The human ecology and social and economic change in the community of Tuktoyaktuk, N.W.T. / Ferguson, J.D.
Ottawa : Dept. of Northern Affairs and National Resources, 1961.
[8], 80, ix p. : ill., figures, maps ; 28 cm.
(Report - Canada. Northern Coordination and Research Centre, 61- 2)
ACU, OORD

This study examines the social organization of the Tuktoyaktuk Eskimos in relation to the resources of the area, using data gathered in the field in 1957. Population characteristics and health conditions are described, and the history of culture contact and change outlined. The author predicts little increase in the number of permanent jobs available to Eskimos in the area, and a decrease in part-time summer employment as freight-handling becomes more mechanized. At the same time, the number of employable males would increase by about five per cent yearly. The fur market was unlikely to rise because many synthetic materials were replacing natural fur. Furthermore, Tuktoyaktuk was not a good trapping area. (NPB)

T-95729
Canada's "unemployable" northerners : square pegs in round holes in the system to be created for the international transfer of energy by pipeline from northern Canada to the United States / Stucki, L.D.
[S.l. : s.n.], 1972.
vi, 187 leaves ; 30 cm.
Appendices.
References.
A paper to be presented at the 71st annual meeting of the American Anthropological Association, December 1, 1972.
ACU

This paper is concerned with how native northerners will fare if the Mackenzie Valley Gas Pipeline is built. It is recommended that rather than a pipeline, that "an integrated oil and liquified gas railway from Prudhoe Bay, Alaska to at least Trout River, N.W.T." be constructed. This is seen as a far "superior solution to the ecological, social, and chronic native unemployment problems that are so severe in Northern Canada". (LET)

T-95842
Regional impact of a northern gas pipeline, Volume 6 : Impact of pipelines on Territorial population, labour force, employment and income (wages) / Canada. DIAND. Economic Staff Group. MPS Associates Ltd. Canada. Environmental-Social Program, Northern Pipelines [Sponsor].
[Ottawa] : DIAND, 1974.
1 v. (various pagings) : tables ; 28 cm.
(Report - Canada. Task Force on Northern Oil Development, no. 73- 33)
Appendices.
References.
ACU

... [This volume (6)] of the study [Regional Impact of a Northern Gas Pipeline] contains information on the population with emphasis on the native population, of the Mackenzie Impact Corridor. This volume provides sufficient information on the local population to enable both policy makers and program managers (responsible for assisting local residents considering taking pipeline and related work) to have as much information as possible before making definite decisions concerning involvement of the local, and total northern native population. ... The information has been arranged to give, first, a basic background picture of the population, then to project to what extent the local population can and will participate directly or indirectly in pipeline projects. ... (Au)

T-95974
Settlement council labour pools : a feasibility study for the Government of the Northwest Territories and the Department of Indian Affairs and Northern Development / Gemini North Ltd. N.W.T. [Sponsor]. Canada. DIAND.
Yellowknife : 1972.
3 v. : tables ; 27 cm.
Appendices.
ACU

... The objectives of ... [this three volume] study were: -- To determine the feasibility of mobilizing the employable male labour force in specified Mackenzie Valley settlements through an organzied labour pool at the settlement council level. -- To motivate more northerners to become members of the labour force at least on a part-time basis, while retaining an opportunity to continue hunting and trapping. -- To suggest the agency or administrative structure which might best serve these aims and those of potential employers and possible methods of financing. ... [The first volume in an overview of the data, settlement, employers and the organization of pilot pools. Volume II and III are appendices, continuining the reports, questionaires and discriptive statistics which are considered]. (Au)

T-98884
The names of economically important or conspicuous mammals and birds in the Indian languages of the District of Mackenzie, N.W.T. and in Sarcee / Hohn, E.O.
(Arctic, v. 15, no. 4, Dec. 1962, p. 299-308, tables)
ACU

T-99058
Changing patterns of Indian trapping in the Canadian Subarctic / VanStone, J.W.
(Arctic, v. 16, no. 3, Sept. 1963, p. 159-174, ill., maps)
ACU

T-100641
Conflicting styles of life in a northern Canadian town / Ervin, A.M.
(Arctic, v. 22, no. 2, June 1969, p. 90-105, figures, tables)
ACU

T-104388
Reiter's disease among Indians in Great Slave Lake area / Gillan, J.G.
(Circumpolar health 81 : proceedings of 5th International Symposium on Circumpolar Health, Copenhagen, 9-13 August, 1981 / Edited by B. Harvald and J.P.H. Hansen. Report - Nordic

Council for Arctic Medical Research, 33, p. 454-455, table)
References.
ACU

Reiter's Disease has potential of great morbidity in young Indian males. The 40% incidence of HLA B27 in the Indians is considered the major factor, triggered by dysentry in most cases. Research on this problem is discussed. (ASTIS)

T-105392
The effect of education on the earnings of Indian, Eskimo, Metis, and white workers in the Mackenzie District of northern Canada / Kuo, C.-Y.
(Economic development and cultural change, v. 24, no. 2, Feb. 1976, p. 387-398, tables)
Document not seen by ASTIS.

Regression analysis was used to evaluate the effect of education and other socio-economic factors on ethnic earnings in the District of Mackenzie. (LET)

T-105597
Assessment of northern native male labour force potential in the rest of the Mackenzie / Canada. DIAND. Data Management Section.
[Ottawa] : DIAND, 1974.
12 p.
Document not seen by ASTIS. Citation from NPB-V1.

This paper contains an assessment of the northern native male labour potential in 1981 in that area of the Mackenzie District outside the Mackenzie Valley Pipeline Corridor. Designated as the Rest of the Mackenzie, the study area excludes all those communities contained within the Pipeline Corridor and the Arctic Coast communities of Holman Island, Coppermine, Cambridge Bay, Gjoa Haven, Spence Bay and Pelly Bay. (NPB)

T-105600
Assessment of northern native male labour force potential in the Mackenzie Valley pipeline corridor / Canada. DIAND. Data Management Section.
[Ottawa] : DIAND, 1974.
11 p.
Document not seen by ASTIS. Citation from NPB-V1.

This paper contains an assessment of the Northern native labour force potential in the Mackenzie Valley pipeline corridor in 1981. The assessment is based on a review of existing data sources, most of which are contained within studies on the probable impact of the construction of a large diameter gas pipeline down the Mackenzie Valley. (NPB)

T-105627
Settlement council labour pools : a feasibility study for the government of the Northwest Territories and the Department of Indian Affairs and Northern Development, volumes 2 & 3, appendix 1 & 2 / Gemini North Ltd. Canada. DIAND [Sponsor]. N.W.T. [Sponsor].
Yellowknife : Gemini North, 1972.
4 v.
Appendices.
Document not seen by ASTIS. Citation from NPB-V1.

Work Arctic is a non-profit unincorporated organization established in 1972 to train and employ the local labour force, particularly natives, in useful and productive work. The aim of the program is to organize and train a section of the work force that is not filling the jobs now available in Hay River primarily because they lack certain skills or work habits. The obstacles to employment may be language barriers, different concepts of responsibilities, lack of understanding, lack of training and or lack of opportunities. In a way Work Arctic is a stage where people who are not normally part of the labour force can be systematically trained and where employers can see the result. The results of the program are impressive. Between eighty five and one hundred pay cheques are processed weekly. About 75 per cent of the work force is native. The men working in crews have accomplished a phenomenal amount of work, mainly clearing fire breaks and future sub-divisions and other slash programs. A list of projects is attached. The record of absenteeism has been good, social welfare in Hay River is down, grocery sales are reportedly up, and there is a notable lack of excessive drinking which often accompanies increases in northern payrolls. Statistics provided on labour force, participation rates and population for settlements in Mackenzie River Valley and Delta. (NPB)

T-105643
Training for employment the native people and the federal public service / Bowles, K.
[Ottawa] : DIAND, 1974.
38 p.
Document not seen by ASTIS. Citation from NPB-V1.

This paper considers the northern native people and their characteristics as they apply to the development of training programs designed to meet occupational skills. Since the primary purpose of training is to achieve satisfactory occupational performance, work characteristics are examined as well as learning characteristics. (NPB)

T-105651
Characteristics of Mackenzie Delta natives and their relationship to employment policies / Canada. Northern Development Program. Bowles, K.
[Ottawa] : DIAND, 1974.
38 p.
Document not seen by ASTIS. Citation from NPB-V1.
QMMNS

This paper attempts to relate background, lifestyle and interests of the native people of the Delta to the guidelines on employment, education and training of the Northern Development Policy 1971-81. The material is drawn from a research study by Dr. D.G. Smith, carried out in the Mackenzie Delta during the period 1965 to 1970. Since that period, economic activity has increased considerably but the changes in the situation portrayed are in degree only. (NPB)

T-105830
The death of Barbue, a Kutchin trading chief / Krech, S.
(Arctic, v. 35, no. 3, Sept. 1982, p. 429-437, figure)
Appendix.
References.
ACU, NFSMO

A richly detailed account of the demise and death of a Kutchin leader in the early 19th century, preserved in Hudson's Bay Company journals, is presented and analyzed for what it reveals of Northern Athapaskan adaptations in the early fur trade era. (Au)

T-105953
The Mackenzie Delta - domestic economy of the native peoples, a preliminary study / Smith, D.G.
Ottawa : [s.n.], 1968.
59 p. : map.
([Report] - Canada. Mackenzie Delta Research Project, 3)
References.
Document not seen by ASTIS. Citation from AB.
ACU

Distinguishes three types of natives in this region: people on the land, settlement dwellers not in continuous employment, and settlement dwellers in continuous employment. Using a means-ends theoretic approach, the goals of each group, the means used to attain these, the degree of attainment and frustration-response behavior are analyzed. Gambling, immoderate drinking, and other such responses are shown to affect chiefly, but not only the second group. Prestige is a major value-orientation and value confusion is considered important in the case of those who desire a "white" job, but idealize the independent fur-trapping existence of the past. A trend toward emergence of a service group (cleaners, brush-cutters, laborers, etc.) is apparent. Many have rejected life on the land without having means to hold steady jobs. Training is viewed as a specific means to obtain prestige goals and may not be generalized, so that if after training a specific job is not available resentment results. More generalized adaptive education rather than intensive specialized training is recommended. Persons entering training should share values and expectations consistent with the program goals. The author sees accelerated movement from the land and from camp life, and development of a class system as future trends among the native peoples of this area. (AB)

T-105961
Work-Arctic proves men prefer jobs to welfare / Sigvaldason, J.
[S.l. : s.n.], 1972.
Document not seen by ASTIS. Citation from NPB-V1.

Article describes the Work-Arctic pilot project set up by Hay River businessmen. It is a somewhat culturally adapted labour pool aimed at providing employment opportunities for the native pupulation. The project is considered successful, and subsequent social impacts are seen as favourable. (NPB)

T-106054
Study of the social aspects found in the Berger hearings transcripts : native employment and the MacKenzie Valley Gas Pipeline / Lanari, R.
Ottawa : [DIAND], 1976.
82 p.
Document not seen by ASTIS. Citation from NPB-V1.

Contains background information on the Mackenzie Valley gas pipeline and an analysis of the Berger inquiry proceedings ralated to native employment, and socio-economic impact studies carried out on the proposed project. Lists socio-economic research undertaken by Government and industry under various themes. (NPB)

T-106089
Inuit employment by Gulf Oil Canada : assessment and impact on Coppermine, N.W.T. / Kupfer, G.
Edmonton : Westrade Institute, 1973.
134 p.
Document not seen by ASTIS. Citation from NPB-V1.

T-106127
Work adjustment of Inuit workers to oil exploration employment / Hobart, C.W. Kupfer, G.
(Western Canadian journal of anthropology, v. 4, no. 3, Jan. 1975, p. 73-88)
Document not seen by ASTIS. Citation from NPB-V1.

Between November 1972 and May 1973, fifty-five Inuit men from Coppermine, N.W.T., were employed by Gulf Oil Canada in connection with oil exploration in the Mackenzie Delta, six hundred miles to the west of Coppermine. These men, who worked for varying durations at various jobs, comprised about one-half of the male work force of that small community. During the summer of 1973, the authors were approached by Gulf Oil Canada to do a study of the adjustment of the men to work and to camp life. They were also interested in the effects of the employment program on the men, their families and the community. (NPB)

T-106178
An economic evaluation of Indian and Metis employment at Pine Point / Deprez, P.
[Winnipeg] : Centre for Settlement Studies, University of Manitoba, 1970.
Document not seen by ASTIS. Citation from NPB-V1
OORD

T-108456
Survey report for Dome Petroleum Limited / Beaufort Environmental Support Services Ltd. MacWatt, D.J. Dome Petroleum Limited [Sponsor].
Tuktoyaktuk, N.W.T. : Beaufort Environmental Support Services Ltd., 1980.
1 microfiche : maps ; 11 X 15 cm.
(Beaufort E.I.S. reference work, no. RWT08)
ACU

Attached is a survey report on travel across ice by residents of the Beaufort Sea communities. ... The survey was conducted with the full co-operation of various representatives of the Beaufort Sea hunting and trapping community and is an honest assessment of the actual areas utilized over a number of years. However, it is important to note that while the survey provides an outline of ice travel, there is no intent to represent the people of the Beaufort communities through this report. For clearer understanding of a possible joint use agreement for proposed all season shipping routes, community negotiations would be essential with the representative groups from each community. ... Each map is accompanied by a description of key areas, numbers of people and timing in relation to offshore activities. Because of seasonal variations in ice formation and marine mammal movements, the areas of travel indicated are extensive. The areas marked against each community's use therefore represents potential usage as opposed to actual usage. The actual area used in any one year may be quite localized. From what I have been able to find out ... although all season travel will probably coincide with traditional bear hunting permits it need not necessarily be in conflict. (Au)

T-109258
Retention patterns in employment of native people in the Mackenzie Valley / de Jong, D.T.P.
Ottawa : Carleton University, 1975.
1 v. (various pagings) : ill., tables ; 28 cm.
Appendices.
Bibliography: p. 100-102.
OORD

Ce rapport presente une etude socio-economique de la localite de Waswanipi. Comporte une analyse de la main d'oeuvre et des possibilites d'emploi. (Au)

T-110876
Dogrib folk history and the photographs of John Alden Mason : Indian occupation and status in the fur trade, 1900-1925 / Helm, J.
(Arctic anthropology, v. 18, no. 2, 1981, p. 43-58, figures)
References.
Original paper presented at Still Pictures in Subarctic Research: a symposium presented at the American Anthropological Association Meeting, Cincinnati, Ohio, Nov. 1979.
ACU

John Alden Mason took a number of photographs during a brief field trip in 1913 from the south shore of Great Slave Lake to Fort Rae, Northwest Territories. Several elderly Dogribs viewed a selection of these photographs in 1979. Their comments, especially the extended remarks of Vital Thomas, added to the "memory ethnography" of the period garnered in prior field inquiries by Helm. Mason's photos bring to visual life aspects of Dogrib cultural and social history to which Mason, constrained by the ethnographic convention of his time to limit field research to putative "aboriginal" culture, did not attend. The various forms of watercraft photographed by Mason represent a 100-year sequence of cultural borrowing and change induced by the fur trade, as "recorded" in Dogrib folk history. Between 1900 and 1925, York boat ownership was one marker of distinctions in wealth, prestige, and status among Dogrib men that accrued from involvement in the fur trade of that period. (Au)

T-119458
Inuktitut asks Sam Raddi about Inuvialuit in the western Arctic.
(Inuktitut, no. 52, Mar. 1983, p. 9-23, ill.)
Text in English, French and Inuktitut.
ACU

Sam Raddi, who has played a major role in the development of the Western Arctic since 1970, speaks of his early years and of his political role. (ASTIS)

T-119466
The Mackenzie Delta dancers and drummers.
(Inuktitut, no. 52, Mar. 1983, p. 34-39, ill.)
Text in English, French and Inuktitut.
ACU

This article describes a group who perform the ancient dances and drum songs of the Inuit. The preparation of the drum is also described. (ASTIS)

T-119482
Inupiatun, in the manner of the Eskimo.
(Inuktitut, no. 52, Mar. 1983, p. 72-73)
Text in English, French and Inuktitut.
ACU

The first documentary film of Mackenzie Delta Inupiat living on the land has been made by film makers Peter Haynes and Harold Tichenor. The 55-minute film focuses on a trapper and his wife in the Mackenzie Delta and Mackenzie Estuary. (ASTIS)

T-122050
The reification of ethnicity and its political consequences in the north / Watson, G.
(Canadian review of sociology and anthropology, v. 18, no. 4, 1981, p. 453-469)
References.
ACU

This paper deals with the means whereby native peoples in Yellowknife manage their ethnic identities within constraints imposed by their biographies and Euro-Canadian power, and explicates the political consequences of this management. It is informed by the ethnomethodological precept that we continually create the social facts we think we discover. (Au)

T-123188
Seasonal photoperiodism, activity rhythms, and disease susceptibility in the central Canadian Arctic / Condon, R.G.
(Arctic anthropology, v. 20. no. 1, 1983, p. 33-48, figures, table)
References.
ACU

The arctic region is characterized by pronounced seasonal variation in environmental conditions, most notably in light intensity and duration (photoperiod). This paper examines the relation between photoperiodicity, activity rhythms, and disease susceptibility in a small Inuit settlement located in the Central Canadian Arctic. Data indicate that marked alteration of sleep/activity rhythms occurs during the winter and summer solstices, and that children are the most responsive behaviorally to these photoperiod fluctuations. During the mid-winter period of constant darkness, such desynchronization results in loss of sleep, physiological fatigue, and improved school attendance, all of which contribute to the mid-winter spread of infectious disease. Disease susceptibility is documented as resulting from the interplay of environmental and cultural variables, both of which are affected by the unique lighting regimen of the arctic ecosystem. (Au)

T-125032
Inuit behavior and seasonal change : a study of behavioral ecology in the central Canadian Arctic / Condon, R.G.
Pittsburgh, Penn. : University of Pittsburgh, 1981.
1 microfilm : figures, maps, tables.
Appendices.
Bibliography: p. 257-272.
Thesis -(Ph.D.) - University of Pittsburgh, 1981.
ACU

This dissertation examines the effects of extreme seasonal change upon chronosusceptibility, birth seasonality, activity rhythms, and interpersonal stress in a small Inuit settlement in the Central Canadian Arctic. In addition to gathering complete ethnographic data on contemporary settlement life, the research concentrates upon the interaction between environmental change and social adaptation, and the manner in which this interaction affects the behavioral and physiological responses of local residents to the arctic environment. A distinct pattern of disease susceptibility is documented and found to be the result of temperature and photoperiod changes as well as socially induced modifications in activity rhythms. The research also investigates and documents seasonal variation in births, conflict behavior, and alcohol consumption. In each case, these seasonal patterns are found to be the result of the unique rhythm inducing character of the arctic ecosystem. (Au)

T-126985
Archaeological ethnography among Mackenzie basin Dene, Canada / Janes, R.R.
Calgary, Alberta : Arctic Institute of North America, University of Calgary, 1983.

ix, 124 p. : figures, tables ; 26 cm.
(Technical paper - Arctic Institute of North America, no. 28)
ISBN 0-919034-57-8
Appendices.
References.
ACU

... What follows is a brief introduction to ethnoarchaeology and a summary of the methodology employed to collect the data on which this paper is based. After an ethnographic introduction to the Dene of Willow Lake, the informant group, the ethnoarchaeological data are described and evaluated. Various archaeological assumptions and techniques of reconstruction are examined in terms of ethnographic information. This paper concludes with a discussion of the relevance of ethnoarchaeological studies for the interpretation of Athapaskan prehistory. ... Archaeological ethnography, also called living archaeology, is one aspect of ethnoarchaeology and refers to the study of living human societies from an archaeological perspective. More specifically, the concern is with the study of refuse and physical remains resulting from observable activity, with the aim of understanding how and why material remains come to occur where they finally do.... The emphasis throughout this study is on providing specific descriptions of behaviour. ... As far as I know, ethnoarchaeological descriptions of northern Athapaskan society in the Northwest Territories are rare, with some notable exceptions (Clark, 1982a; Noble, 1975). There is a very real need to begin documenting human behavioural variability in this region as the necessary first step. ... (Au)

T-131458
Sessional paper, ninth sitting Northwest Territories Legislative Assembly - The First Ministers' Conference on Aboriginal Rights, March 9, 1983.
(First Ministers' Conference on Aboriginal Rights and the Constitution, Ottawa, March 15-16, 1983, p. 23-27)

The purpose of this paper is therefore to apprise the Members of the current status of the talks, and to seek direction on certain issues which will be discussed at the First Ministers' Conference. This paper consists of a short review of the agenda items and an indication of how some of the items will likely be dealt with by the first ministers. (Au)

T-134813
The book of Dene : containing the traditions and beliefs of Chipewyan, Dogrib, Slavey, and Loucheux peoples / N.W.T. Dept. of Education. Programme Development Division.
Yellowknife, N.W.T. : Programme Development Division, Dept. of Education, 1976.
78 p. ; 21 cm.
Translated from French and compared with versions in the original tongues.
ACU

These books are the books of Dene. In them are the histories, tales and traditions of the Dene. In them is contained the wisdom of the Dene. Just as in the bible you will find the histories, tales and traditions of the people of Israel as told by Moses and other storytellers, so in this book you will find the histories, tales and traditions of the Dene as told by Dene a hundred years ago. They were spoken to a priest called Emile Petitot (1838-1916) who wrote the words down in the Dene language. (Au)

See Also : I-32166, I-43915, I-43923, I-44008, I-47210, I-107751, I-115169, J-115924, L-108413, L-120596, N-89885, P-91219, P-106488, Q-9873, Q-9881, Q-29904, Q-30309, Q-43990, Q-63762, Q-89621, Q-92266, Q-93408, Q-95702, Q-95877, Q-95958, Q-95990, Q-108715, Q-112712, Q-113395, Q-116823, Q-138207, R-76910, R-77968, R-91332, R-91405, R-93416, R-93521, R-94234, R-94250, R-94277, R-94293, R-119580, R-135593, S-42269, S-69892, U-65374, U-89079, U-103110, U-125954, V-20095, V-33618, V-37931, V-43613, V-55379, V-63339, V-65528, V-66079, V-67164, V-115860, W-138177

U - ARCHAEOLOGY

U-5711
The lagoon site (OjRi-3) : implications for Paleoeskimo interactions / Arnold, C.D.
Calgary : c1978.
xii, 203 leaves : ill., maps, charts, plates ; 29cm.
Thesis (Ph.D.) - University of Calgary, 1978.
Bibliography: leaves 188-203.
ACU

Excavations at the Lagoon site (OjRi-3) on the southern coast of Banks Island, N.W.T., have provided a data base with which to formulate hypotheses concerning the Paleoeskimo culture history of the western periphery of the Canadian Arctic at ca. 500 B.C. In the sevveral centuries previous to that date, Dorset culture is believed to have evolved in the Foxe Basin - Hudson Strait region of the Eastern Arctic, and from there spread by immigration into areas formerly occupied by Pre-Dorset people. At about the same time, Choris and Norton complexes were expanding from Alaska into northwestern Canada. The artifact assemblage obtained from the Lagoon site incorporates traits which are characteristic of several of these Paleoeskimo complexes. Since it appears that no more than one occupational episode is represented at the site, diffusion resulting from cross-cultural interactions is hypothesized to account for the nature of the data. In order to develop this postulate, aspects of models devised for historical, biological and anthropological explanations are drawn upon. (Au)

U-12033
Besiedlung und sedimentation der Pra-Dorset-Station Umingmak I D, Banks Island, N.W.T. = Occupation and sedimentation of the Pre-Dorset site Umingmak I D, Banks Island, N.W.T. / Hahn, J.
(Polarforschung, v. 47, no. 1/2, 1977, p. 26-37, ill., figures)
English summary.
References.
Text in German.
ACU

The Pre-Dorset Umingmak site is a camp settled by musk-ox hunters 3.400 radiocarbon years ago; ... The site is considered to be an inland hunting camp occupied during and at the end of the warmer season; during the colder season these Paleoeskimos probably lived on the coast. ... (Au)

U-12041
Head Hill Flat site, ein herbstlagerplatz der Kupfer-Eskimo auf Banks Island, N.W.T. = Head Hill Flat site, an autumn camp of the Copper-Eskimo on Banks Island, N.W.T. / Campen, I.
(Polarforschung, v. 47, no. 1/2, 1977, p. 38-46, map, figures)
English summary.

References.
Text in German.
ACU

Head Hill Flat is a Copper Eskimo autumn camp site, located on the northern end of the Thomsen River on Banks Island, N.W.T. 34 tent pits could be identified, some were outlined with stones and almost all of the entrances faced south to south-east. Several occupation phases could be established from the tent pit features, about 12 visits from probably 3-4 families each time. ... A direct relationship can be seen between Head Hill Flat and Kunana site on Victoria Island. This supports STEFANSSONS (1944) theory that the Copper Eskimo from Victoria Island migrated to the north of Banks Island in search of the wreck "Investigator". ... (Au)

U-15369
A human mandible in probable association with a Pleistocene faunal assemblage in eastern Beringia : a preliminary report / Irving, W.N. Mayhall, J.T. Melbye, F.J. Beebe, B.F.
(Canadian journal of archaeology, no. 1, 1977, p. 81-93, figures, map, tables)
References.
ACU

In 1976 a portion of mandible of a human child was found in probable association with bones of Pleistocene fauna in point bar deposits on the Old Crow River, northern Yukon Territory. The morphology and odontology of the mandible are described, and it is concluded that no specific or sub-specific taxonomic designation can be assigned. It is suggested that the mandible is of an age greater than 20,000 years, and may relate to a Pleistocene human occupation of eastern Beringia. (Au)

U-19224
Fluted point makers and the extinction of the Arctic-Steppe biome in eastern Beringia / Morlan, R.E.
(Canadian journal of archaeology, no. 1, 1977, p. 95-108)
(Contribution - Canada. Yukon Refugium Project, no. 31)
Bibliography: p.103-108.
ACU

Data and inferences concerning the Late Pleistocene extinction of the Arctic-Steppe biome in eastern Beringia are summarized, and their implications for early man in the New World are examined. A possible link is noted between these extinction phenomena and the sudden widespread appearance of fluted points in interior North America. Various aspects of this problem, including the ecology of the Mackenzie Corridor, the various possible causes of extinction, and the question of archaeological visibility, are discussed .... (Au)

U-21539
Reflections / Irving, W.N.
(Asian perspectives, v. 19, no. 1, 1978, p. 91-95)
Reference.
ACU

Briefly discusses the theory of early man's migration from the Far East to the Yukon and then on to highland Mexico approximately 30,000 years ago. Describes the tools which were brought with him. (ASTIS)

U-22187
A faunal analyst in the northern Yukon / Savage, H.
(NYRP contribution, no. 3)
(Arch notes, 1975 [10] Oct., p. 16-18)
References.
ACU

Describes the various types of faunal bones found in the Old Crow Basin, Y.T. Bones of extinct mammal species as mammoths, horses, and bison have been preserved in the area. (ASTIS)

U-22519
Element concentrations in fossil bones using neutron activation / Farquhar, R.M. Bregman, N. Badone, E. Beebe, B.F.
[S.l. : s.n., 1978?].
[19] leaves : figures ; 28cm.
(NYRP contribution, no. 10)
Paper presented for 1978 Symposium on Archaeometry and Archaeological Prospecting, Bonn, Germany, 14-17 March, 1978.
ACU

In this paper we present the results of preliminary Neutron Activation analyses of fossil bone samples from the Old Crow River region of the Northern Yukon Territory, Canada. ... measurements of elemental concentrations in these fossils would provide a quantitative figure for the extent and nature of the mineralization. It might also be possible to discern multiple mineralization events, and to determine when ... mineralization took place. ... (Au)

U-22756
The Northern Yukon Research Programme: highlights of 1978 field work / Toronto. University. Dept. of Anthropology.
Toronto : University of Toronto, Dept. of Anthropology, [1978].
[3] leaves ; 28 cm.
ACU

... In some respects this has been one of the most productive field seasons, inasmuch as one of the objectives of highest priority was attained not once but five times: this is the excavation of artefacts from deposits of unquestionable Pleistocene age, ... we found and were able to excavate fluvial deposits containing bone artefacts that lie well below layers dated by carbon 14 to >50,000 years at Old Crow Locality 11,... (Au)

U-22764
Pleistocene archaeology in eastern Beringia / Irving, W.N.
[Toronto : University of Toronto, Dept. of Anthropology, 1978?].
[6] p. ; 28 cm.
(NYRP contribution, no. 4)
(Early man in America from a circum-Pacific perspective / Edited by Alan Lyle Bryan. Edmonton : Archaeological Researches International, [1978?]. Occasional papers - Alberta. University. Dept. of Anthropology, no. 1)
References.
ACU

The main purpose of this paper is twofold: 1. to discuss evidence for human activity in the Yukon Territory of Canada at a time before the Classical Wisconsinan ...glacial stage, and 2. to suggest, very tentatively, how this evidence can be understood in relation to the Paleolithic of Siberia. (Au)

U-28428
The Northern Yukon Research Program : discovery / Toronto. University. Media Centre.
[Toronto : Media Centre, University of Toronto, 1978?].
6p. ; 22cm.
ACU

... The program is co-ordinated by Professor W.N. Irving of the University of Toronto's Department of Anthropology. It began in 1975, and will continue at least until 1980. The aim of the program is to discover how humans lived in the Old Crow area some 30,000 years ago including, in detail, what they ate, where they lived, what they wore, and even what they did: day to day, and generation to generation, from that time until the present. ... (Au)

U-28622
The search for the first Americans / Canby, T.Y. Smith, K. [Illustrator]. Andersen, R. [Illustrator].
(National geographic, v.156, no. 3, Sept. 1979, p. 330-363, map, col. ill.)
ACU

Discusses prehistoric man's migration from Asia to the Americas across the Bering land bridge, the sealing off of Beringia from the Ice Age, and the recent archaeological finds in Yukon's Old Crow Basin. (ASTIS)

U-31925
Early man in northern Yukon Territory : perspectives as of 1977 / Morlan, R.E.
(Early man in America from a circum-Pacific perspective / edited by Alan Lyle Bryan. Edmonton : Archaeological Researches International, 1978. Occasional papers - Alberta. University. Dept. of Anthropology, no. 1, p. 78-95, ill., map, photos.)
(Contribution - Canada. Yukon Refugium Project, no. 30)
References.
ACU

... Archaeologists long have believed that Beringia played a key role in the initial colonization of the New World by human immigrants from northeast Asia, but this model long has been frustrated by the absence of evidence for late Pleistocene human occupations in Beringia. Northeastern Beringia finally has begun to yield such evidence in the form of a distinctive bone technology found primarily in northern Yukon Territory. In this paper we will outline the paleoenvironmental contexts of early human occupations in the Old Crow area of the Yukon. ... (Au)

U-46019
Bluefish Cave I : a late Pleistocene eastern Beringian cave deposit in the northern Yukon / Cinq-Mars, J.
(Canadian journal of archaeology, no. 3, 1979, p. 1-32, ill., map, photos.)
(NYRP contribution, no. 24)
References.
ACU

This paper describes some of the preliminary results of a test excavation carried out at the Bluefish Caves site (northern Yukon Territory) during the summer of 1978. The data at hand allow us to suggest that the site was utilized by human groups at the end of the Pleistocene, between 13,000 and 10,000 B.P. The deposit is viewed as important mainly because of the primary (or nearly so) context of its constituents (lithic specimens, Pleistocene faunal elements, etc.) which is a rather unique situation for sites of that age in the boreal Cordillera. (Au)

U-49875
New dates for early man / Morlan, R.E. Matthews, J.V.
(Geos, 1978 [1] Winter, p. 2-5, ill.)
(Contribution - Canada. Yukon Refugium Project, no. 32)
ACU, NFSMO

New finds that indicate man was in North America long before some archaeologists previously thought are being uncovered in the Northern Yukon. Bone tools and other bones broken by man more than 30 000 years ago have been found in an area that escaped coverage by ice in the Pleistocene age. Previous estimates by some archaeologists had put the first human inhabitatants at 14 000 years ago. The new finds mean that the earliest human history of this continent, and the nature of admissible evidence for that history, will demand rethinking. (Au)

U-53023
A Paleoeskimo occupation on southern Banks Island, N.W.T. / Arnold, C.D.
(Recent research in Eskimo archaeology, papers / Canadian Archaeological Association/Society for American Archaeology Symposium, Vancouver, B.C., April 25-26, 1979. Arctic, v. 33, no. 3, Sept. 1980, p. 400-426, ill., figures)
References.
ACU, NFSMO

Significant changes occurred within Paleoeskimo cultures during the first millenium B.C. Archaeological remains from the Lagoon site, on Banks Island, N.W.T., provide a new perspective on the nature of those changes and insights into some of the processes involved. (Au)

U-59366
Taphonomy and archaeology in the Upper Pleistocene of the northern Yukon Territory : a glimpse of the peopling of the New World / Morlan, R.E.
Ottawa : National Museums of Canada, 1980.
xxvii, 398p. : ill., figures, plates, tables ; 28cm.
(Paper - Canada. National Museum of Man. Archaeological Survey of Canada, no. 94, 1980)
References.
ACU

... During the past 14 years, Old Crow Flats and several other areas of the Yukon Territory have gradually provided tens of thousands of Upper Pleistocene vertebrate fossils among which there are enough artificially modified specimens to increase the archaeological record by a hundred fold. These discoveries have prompted a series of field and laboratory studies specifically designed to improve our analogues for interpreting bone, antler, tusk, and tooth specimens which have been altered by both natural and artificial agencies. ... One purpose of this report is to review the current status of several aspects of our knowledge of bone alterations and to make recommendations as to how our analogues can be enlarged and improved. ... (Au)

U-62693
Pleistocene bone technology in the Beringian refugium / Bonnichsen, R.
Ottawa : National Museums of Canada, 1979.
xiii, 297p. : ill., figures, plates, tables ; 28cm.
(Paper - Canada. National Museum of Man. Archaeological Survey of Canada, no. 89)
(Mercury series)
Appendices.
References.
ACU

In the unglaciated section of northwestern

North America, known as the Beringian Refugium, Pleistocene vertebrate remains are well preserved in perma-frost deposits. Major paleontological collections have been gathered from primarily four areas: Old Crow Flats in the northern Yukon; the Dawson vicinity in south central Yukon; Lost Chicken Creek, west central Alaska; and from the Fairbanks region in central Alaska. Radiocarbon dates on these assemblages, which lack stratigraphic context, range in age between 10,000 and greater than 40,000 years before present. ... A control reference collection of bones modified by known processes was assembled and bone breaking experiments were conducted for the purpose of separating fossil bones altered by geological, biological and cultural agencies. ... Bone, antler, and ivory from the Arctic-Steppe tundra herd herbivores have been modified by a variety of techniques. ... On the basis of the surviving tools, it is reasonable to assume that the early Beringian populations had a flexible repertoire of tool making techniques at their disposal. ... (Au)

U-65021
Stratigraphic, sedimentological and faunal evidence for the occurrence of Pre-Sangamonian artefacts in northern Yukon / Jopling, A.V. Irving, W.N. Beebe, B.F.
(Arctic, v. 34, no. 1, Mar. 1981, p. 3-33, figures, tables)
References.
ACU, NFSMO

The stratigraphic position of artefacts of undoubted Pleistocene age found in the Old Crow Basin has long been in question. We report on geological, palaeontological and archaeological excavations and studies there which show that artefacts made by humans occur in deposits of Glacial Lake Old Crow laid down before Sangamonian time, probably during a phase of the Illinoian (=Riss) glaciation. The geological events surrounding and following the deposition of Glacial Lake Old Crow were complicated by a changing lake level, localized soft-sediment flowage, pingo formation and dissolution, and by the colluvial transport of vertebrate fossils and artefacts. Following deepwater stages of the Lake, an environment not greatly different from that of the present is suggested by the excavated vertebrate fauna and by permafrost features, although warming during the succeeding Sangamon can be considered likely. Sangamonian and later phenomena in the Old Crow Basin are referred to briefly; they show that humans persisted in the area for some time. (Au)

U-65374
Washout : a western Thule site on Herschel Island, Yukon Territory / Yorga, B.W.D.
Ottawa : National Museums of Canada, 1980.
xvii, 219p. : ill., figures, plates, tables ; 28cm.
(Paper - Canada. National Museum of Man. Archaeological Survey of Canada, no. 98, 1980)
(Mercury series)
Thesis (M.A.) - University of Toronto, 1979.
ACU

... Excavations at the Washout site (MjVi-2), Herschel Island, Yukon Territory were conducted ... in order to obtain data on early Thule subsistence, and to determine the affinity of the site to later Mackenzie Eskimo occupations. Analysis of the data indicates that the Washout site was inhabited by Western Thule peoples ... from about 1000 - 1400 A.D. The inhabitants practiced opportunistic exploitation of seal, fish, caribou, whale and other species during the winter occupation of the site. The Washout site is interpreted as one of a number of sites on the Beaufort Sea - Amundsen Gulf coast representing an early Western Thule expansion. Mackenzie Eskimo culture is interpreted as a distinct regional variant, derived from this Western Thule base. (Au)

U-73032
Archaeological sites of the Canadian north : their preservation / Hett, C.
(CCI, v. 3, 1978, p. 13-19, maps, col. photos.)
Suggested reading.
ACU

... By focusing our attention on two distinct geographic areas in the north - the High Arctic and the Yukon coast - we have selected two cultural periods that illustrate some of the unique and varied problems facing those concerned with the conservation and preservation of this rich cultural past. Much of the material from the two periods remains on or close to the surface and is presently threatened by a variety of agents: discussion of some of these examples will point to some of the more characteristic problems in the preservation of this invaluable data that face archaeologists, museum curators and conservators. First, we will consider the Thule culture period that dates from approximately 1000 to 1600 A.D. when an apparently homogenous Eskimo culture populated different areas throughout the entire Arctic and developed adaptations to various climatic zones. Secondly, we will consider the historic period of European exploration and whaling dating from 1820 to the present. (Au)

U-74128
A domestic dog (Canis familiaris L.) of probable Pleistocene age from Old Crow, Yukon Territory, Canada / Beebe, B.F.
(Canadian journal of archaeology, no. 4, 1980, p. 161-168, figures, table)
References.
ACU

A complete right dentary of a domestic dog, Canis familiaris L., recovered from Old Crow Basin, Yukon Territory, Canada, may represent one of the earliest known domestic dogs. The oldest known dog remains have been dated to approximately 12,000 BP. Although the Old Crow specimen has not been radiocarbon-dated, it is inferred to be Pleistocene in age on the basis of its stratigraphic position and staining. (Au)

U-84352
Les grottes du Poisson-Bleu [The Bluefish Caves] / Cinq-Mars, J.
(Geos, v. 11, no. 1, Winter 1982, p. 19-21, col. ill.)
Text in French.
ACU, NFSMO

The Bluefish Caves site, located in the Porcupine basin of the northern Yukon interior has yielded a variety of in situ, late Pleistocene faunal and archaeological materials indicating that between 17,000 and 12,000 years ago human groups had developed means of adapting themselves to what must have been a fairly severe periglacial climate. This paper describes some of these finds and some of their implications for future research. (Au)

U-87335
The Lagoon site (OjRl-3) : implications for Paleoeskimo interactions / Arnold, C.D.
Ottawa : National Museums of Man, 1981.
xv, 223p. : ill., tables ; 28cm.
(Paper - Canada. National Museum of Man. Archaeology Survey of Canada, no. 107, 1981)
(Grant-in-aid - Arctic Institute of North America)
Thesis (Ph.D.) - University of Calgary, 1978.

Bibliography: p.188-203.
ACU

Excavations at the Lagoon site (OjRl-3) on the southern coast of Banks Island, N.W.T., have provided a data base with which to formulate hypotheses concerning the Paleoeskimo culture history of the western periphery of the Canadian Arctic at ca. 500 B.C. In the several centuries previous to that date, Dorset culture is believed to have evolved in the Foxe Basin - Hudson Strait region of the Eastern Arctic, and from there spread by immigration into areas formerly occupied by Pre-Dorset people. At about the same time, Choris and Norton complexes were expanding from Alaska into northwestern Canada. The artifact assemblage obtained from the Lagoon site incorporates traits which are characteristic of several of these Paleoeskimo complexes. Since it appears that no more than one occupational episode is represented at the site, diffusion resulting from cross-cultural interactions is hypothesized to account for the nature of the data. In order to develop this postulate, aspects of models devised for historical, biological and anthropological explanations are drawn upon. (Au)

U-87530
Eastern Arctic tanker route : an archaeological resources overview / ARESCO Ltd. Kelly, M. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
2 v. : ill., figures (1 folded) ; 28 cm + [37] maps ; 59 X 74 cm.
(Beaufort E.I.S. support document, no. BEISSD20, BEISSD20A)
References.
This report is accompanied by 37 topographic maps separately bound entitled: Archaeological sites : Arctic tanker route (BEISSD20A).
ACU

An archaeological study area of 19 Borden blocks is defined in the Arctic Archipelago between the Beaufort Sea and Baffin Bay. The study area canvases likely alternatives of an Eastern Arctic Oil Tanker Route. From various file sources 747 [recorded] sites were found ... [to be] representative of an archaeological record extending back 3,000 years. From base sample projections of two intensively resurveyed areas it was estimated that there may be 17,000 sites in the study area. Most of these sites will be found 2 m above sea level. ... (Au)

U-88079
Pleistocene cultures in Old Crow Basin : interim report / Irving, W.N.
(Contribution - Northern Yukon Research Programme, no. 34)
(Peopling of the new world / Edited by J.E. Ericson, R.E. Taylor and R. Berger. Ballena Press anthropological papers, no. 23, p. 69-79, ill., figures)
ACU

I have prepared a very brief summary of research on Pleistocene cultures in the Old Crow Basin, as of September 1980. ... Of most general interest and significance are some findings that suggest very strongly that we have found in Beringia (the Pleistocene subcontinent that subsumes the unglaciated westernmost parts of northern North America and eastern Siberia) evidence of cultures of Riss/Illinois age. Our excavations in the easternmost part of this province, at Old Crow River ... establish this ... beyond doubt .... (Au)

U-92010
Heritage resources impact assessment, Beaufort Sea coastal region, volume 4 / Fedirchuk McCullough & Associates Ltd. Fedirchuk, G.J. Esso Resources Canada Limited [Sponsor]. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
35 p. : tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD02)
References.
ACU

... Heritage resource investigations to date in the Beaufort Sea coastal region are characterized by limited, sporadic and unsystematic survey and data recovery. As a result, good information on site distribution, site types and uses is generally lacking. Because of the general paucity of excavated sites, a good documented sequence of prehistoric occupation, cultural development and resource exploitation is not available. Information concerning palaeoenvironmental conditions and changes is also lacking. The heritage resource studies associated with the proposed development plan can potentially significantly contribute to the current state of knowledge on prehistoric environments and cultural adaptations in the Beaufort Sea coastal region. (Au)

U-92029
Heritage resources impact assessment, Mackenzie River pipeline corridor, volume 4 / Fedirchuk McCullough & Associates Ltd. Fedirchuk, G.J. Esso Resources Canada Limited [Sponsor]. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
iv, 43 p. : tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD03)
References.
ACU

The proposed development plan and associated heritage resources programme can contribute positively to heritage resource conservation. Systematic survey and inspection of proposed development areas will ensure that sites currently exposed and endangered by erosion, unregulated animal and human traffic and other unregulated activities will be identified and evaluated as to potential significance in reconstructing past lifestyles and environments. On that basis, appropriate action can be taken to ensure that significant sites will be adequately preserved or recovered. ... the heritage resource investigations associated with the proposed development plan can potentially contribute significantly to the state of knowledge on prehistoric environments and correlative cultural adaptation and development in the Mackenzie Valley area. (Au)

U-92045
Heritage resource overview coastal onshore area Beaufort Sea - Mackenzie Valley development project, volume IA / Fedirchuk McCullough & Associates Ltd. Fedirchuk, G.J. Millar, J.F.V. Hardy Associates (1978) Limited [Sponsor]. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
33 p. : maps (some folded), tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD05)
Appendix.
References.
ACU

... The general objectives of this study are to assemble a current data base on the heritage resources in the study area which can serve as a framework for future assessment of the possible impact of development related to terrain disturbance. The specific terms of reference can be summarized as follows: 1. To conduct a literature review of historical, ethnohistorical, ethnological, archaeological and palaeontological work in the study area and to prepare a concise synthesis of the pertinent data. 2. Based on this review, to prepare a set of land use models that could be applied to the terrain and circumstances of the specific onshore developments. (Au)

U-92053
Heritage resource overview transportation corridor Beaufort Sea - Mackenzie Valley development project, volume IIA / Fedirchuk McCullough & Associates Ltd. Fedirchuk, G.J. Millar, J.F.V. Hardy Associates (1978) Limited [Sponsor]. Dome Petroleum Limited [Sponsor].
[Calgary : Dome Petroleum Limited], 1981.
1 v. (various pagings) : maps (some folded), tables ; 28 cm.
(Beaufort E.I.S. support document, no. BEISSD06)
Appendix.
References.
ACU

... The general objectives of this study are to assemble a current data base on the heritage resources in the study area to serve as a framework for future assessment of the possible impact of development related terrain disturbance. The specific terms of reference can be summarized as follows: 1. To conduct a literature review of historical, ethnohistorical, ethnological, archaeological and palaeontological work in the study area and to prepare a concise synthesis of the pertinent data. 2. Based on this review, to prepare a set of land use models that could be applied to the terrain and circumstances of the specific corridor to be traversed by the pipeline. (Au)

U-98191
Prehistory in the Dismal Lake area, N.W.T., Canada / Harp, E.
(Arctic, v. 11, no. 4, 1958, p. 219-249, figures, maps)
ACU

U-102717
Whirl Lake : a stratified Indian site near the Mackenzie Delta / Gordon, B.C. Savage, H.
(Arctic, v. 27, no. 3, Sept. 1974, p. 175-188, ill., figures, tables)
ACU

U-103110
The Great Bear Lake : its place in history / Johnson, L.
(Arctic, v. 28, no. 4, Dec. 1975, p. 231-244, ill., figure)
ACU

U-118150
Summary of archaeological investigations along the Norman Wells to Zama Pipeline (1980-1981) / Hardy Associates (1978) Limited.
Interprovincial Pipe Line (NW) Ltd. [Sponsor].
Edmonton, Alta. : Interprovincial Pipe Line (NW) Ltd., 1982.
iv, 38 leaves : figure (folded), tables ; 29 cm.
Appendices.
References.
ACU

Potential heritage resource sites along the Norman Wells to Zama pipeline route were examined in two studies. Following an assessment of the sites, potential impacts resulting from the construction and operation of the pipeline were identified and mitigative measures were presented. Three previously undiscovered prehistoric sites were located and assessed, while seven known prehistoric sites and one historic site were reassessed relative to pipeline construction. Only one site, LfRq6, is of significant importance and close enough to the right-of-way (100 m) that it requires specific protection. ... (Au)

U-122190
Rock River research : archaeological survey along the Dempster Highway in the area of the Rock River headquarters / Gotthardt, R.
(Newsletter - Yukon Historical and Museums Association, no. 12, 1983, p. 36-39)
ACU

This paper reports on the archaeological work conducted in the Rock River area along the Dempster Highway (ASTIS)

U-124036
Man-environment relationships in barrenland prehistory / Gordon, B.C.
(The musk-ox, no. 28, 1981, p. 1-19, figures, tables)
References.
ACU

A close association between human tribes and caribou populations (hunting bands and caribou herds) has existed in Canada's barrenlands since man's earliest occupation about 6000 B.C. Game populations and topography exerted direct influences on human cultures while climate, game forage, forage distribution, and hunting pressure exerted secondary or indirect influences upon the caribou themselves. (Au)

U-125954
Thule culture in western Coronation Gulf, N.W.T. / Morrison, D.A.
Ottawa : National Museums of Canada, 1983.
xix, 366 p. : figures, tables
(Paper - Canada. National Museum of Man. Archaeological Survey of Canada, no. 116, 1983)
ISBN 0316-1854, 0317-2244
ACU

To date, the nature and development of Thule Eskimo culture along the Canadian central Arctic coast has received comparatively little attention. Little has been known of the spread of Thule culture into this region, or of its relationship to Thule in other, better-understood areas to the east and west. ... In order to investigate Thule culture in this strategic but marginal region, excavations were undertaken between 1979 and 1981 at three house sites on the western coast of Coronation Gulf. Principal among these is the Clachan site, a three-house village which was almost entirely excavated. On the basis of stratigraphy and typological comparisons, this site appears to have been occupied over a period of several centuries between about A.D. 1150 and 1450. ... Together these sites, along with others already excavated, appear to represent a fairly distinctive stylistic variant of Thule culture in the western central Arctic. This variant is primarily affiliated with western rather than eastern Thule, and appears to be of direct Alaskan origin. Subsistence strategies are also examined. Subsistence at the study sites was based overwhelmingly on ringed seal, but a number of lines of evidence indicate an economic orientation which was quite different from that of the historic Copper Eskimo of the area. In particular, it is suggested that the Thule inhabitants had not yet developed breathing-hole hunting techniques which were effective under the difficult ice conditions of the central Arctic. (Au)

U-133353
The composition of fatty materials from a Thule Eskimo site on Herschel Island / Morgan, E.D. Titus, L. Small, R.J. Edwards, C.
(Arctic, v. 36, no. 4, Dec. 1983, p. 356-360, figures, tables)
References.
ACU

Analysis of midden material from a Thule Eskimo dwelling site on the shore of Herschel Island showed it to contain a high proportion of fatty material. Chemical analysis shows this to consist of a mixture of fatty acids from the fats and oils of marine animals which has been partially, but far from completely, converted to adipocere. The lack of complete conversion is attributed to anaerobic conditions, low ambient temperature, and lack of bacterial action. The results are consistent with, but not a proof that the debris is from a mixture of harbour, ringed, and bearded seal, which is the conclusion from the bone fragments found. (Au)

U-138363
Archaeological site survey and excavations on Banks Island, 1976 / Arnold, C.D.
Calgary, Alta. : University of Calgary, Dept. of Archaeology, [197-?].
vii, 67 p. : figures, [14] leaves of plates, tables ; 30 cm.
Bibliography: leaves 52, 53.
ACU

A field programme of archaeological research was conducted during the summer of 1976 for the purpose of investigating the nature and extent of Thule Eskimo occupations along the south coast of Banks Island, N.W.T., from the region of the Masik River in the east to Cape Kellet in the west .... Accordingly, a crew of four was put down by helicopter near the mouth of the Masik River on June 20 with the intent of conducting a foot and boat survey northwest along the coast. Plans in this regard were frustrated, however, as the sea ice in the research area failed to go out until the second week in August. A thorough survey of the areas within hiking distance was conducted during this period; the major part of the time, however, was spent excavating a site showing Pre-Dorset cultural affinities which was located a short distance southeast of the Masik River. ... This report reflects a preliminary assessment of the data obtained, and as such will hopefully contribute to a more comprehensive understanding of the history and prehistory of Banks Island. (Au)

See Also : B-60178, T-126985, V-20095

V - HISTORY

V-4430
Stefansson as I knew him. Part 2 / Finnie, R.S.
(North/Nord, v. 25, no. 4, July/Aug. 1978, p. 12-19, ill.)
ACU

The author describes his friendship with Stefansson. He concentrates on the period during W.W.II when both he and Stefansson were employed by the U.S. Office of Coordinator of Information which was engaged in the collection of information considered useful for the joint defence of the U.S. and Canada. Stefansson was the Arctic expert and the author was his representative in Ottawa. In particular, the author describes their involvement in the CANOL project, a pipeline built to carry crude oil from Norman Wells to a refinery in Whitehorse. (ASTIS)

V-13951
The Canol pipeline project, a historical review / Ueda, H.T. Garfield, D.E. Haynes, F.D.
Hanover, New Hampshire : U.S. Army, CRREL, 1977.
iv, 32p. : figures ; 27cm.
(Special report - U.S. Army. CRREL, 77- 34)
Cover title.
References.
ACU

This report is a historical review of the Canol project, the first long-distance petroleum pipeline system constructed in the Arctic regions of North America. ... It was designed to supply the military need for fuel in the area, particularly Alaska, by exploiting the Norman Wells oil field in the Northwest Territory of Canada. The system was completed in April 1944 and operated for 11 months converting 975,764 barrels of crude oil into gasoline and fuel oil. Construction for the pioneering effort was difficult and costly. ... (Au)

V-18619
Nahanni National Park historical resources inventory / Addison (W.D.) and Associates. Addison, W.E. Addison, W.D. Anthony, G.
[Ottawa] : Dept. of Indian and Northern Development, Parks Canada, National and Historic Parks Branch, 1975-76.
2v. : ill., fold. map ; 28cm.
(Manuscript report - Canada. National Historic Parks and Sites Branch, no. 196)
Cover title
Contents: - v.1, pt.1. A preliminary chronology for Nahanni National Park and the South Nahanni watershed, N.W.T., by Wendy E. Addison and William D. Addison. - v.1, pt.2. Interviews with R.M. Patterson, Willy McLeod. - v.2, pt.1. Interview with G. Kraus. - v.2., pt.2. Interview of Bill Clark, interview of Albert Faille, by Garnet Anthony.
ACU

Presents the history of the South Nahanni area with a chronology of events from transcripts of 1823 to 1973. The greater part of this work consists of interviews with settlers who lived in the area. (ASTIS)

V-20095
Excavations at the Lagoon Site (OjRl-3), Banks Island, N.W.T., 1977 / Arnold, C.D.
[Calgary : Dept. of Archaeology, University of Calgary, 1977].
vi, 38 leaves : maps, tables, plates ; 29cm.
Bibliography: p.25-26.
ACU

This report constitutes a preliminary analysis of the results of a second season of archaeological investigations at the Lagoon Site (OjRl-3), a Paleoeskimo campsite situated near the mouth of the Masik River on the southwest coast of Banks Island, N.W.T. .... Accordingly, a crew of five spent seven weeks at the site during the summer of 1977, testing new areas and extending the excavations of the previous year. The data thus obtained is seen to have a bearing upon our interpretation of the nature of the prehistoric cultural interactions between the western and eastern regions of the North American Arctic. (Au)

V-24155
The annual catch of Greenland (bowhead) whales in waters north of Canada 1719-1915 : a preliminary compilation / Ross, W.G.
(Arctic, v. 32, no. 2, June 1979, p. 91-121, ill., figures, tables)

References.
ACU, NFSMO

... Using unpublished whaling logbooks and journals, manuscript annual summaries of Dutch and British whaling, and other sources, the author assembles data annually for each of the whaling grounds of Davis Strait, Hudson Bay, and the Beaufort Sea, which indicate that more than 29,000 whales were secured. Considering gaps in the coverage and the mortality of wounded escaped whales, the total kill during the whaling period may have exceeded 38,000. This reconstruction is considered preliminary .... (Au)

V-32816
"Punch" Dickins and the origin of Canol's
Mackenzie air fields / Barry, P.S.
(Arctic, v. 32, no. 4, Dec. 1979, p. 366-373, map)
References.
ACU, NFSMO

Correspondence between the Canadian flyer, C.H. "Punch" Dickins, and government officials in Ottawa during the early summer of 1942 reveals that the United States Army began building an "unauthorized" military air route to Norman Wells ... much earlier than the U.S. War Department's official histories admit, and that, although Canada's Cabinet War Committee professedly knew nothing of it, certain Canadian government personnel were privy to the secret. ... (Au)

V-33618
The native response to the extension of the
European traders into the Athabasca and Mackenzie Basin, 1770-1814 / Sloan, W.A.
(Canadian historical review, v. 60, no. 3, 1979, p. 281-299)
References.
ACU

The author relates the impact that the North West Company had on the Indian tribes in the Athabasca and Mackenzie river basins. Between their arrival in 1778 and their withdrawal in 1814 the Company brought disease, disrupted tribal relations and hunting patterns, and precipitated changes in the balance of power between the Indians which caused a deterioration of inter-tribal relations. The Indians consciously withdrew from the fur trade because of competition with each other, alcohol and gifts which lessened their desire to work, and, in the case of the Chipewyans, the severe and inhumane treatment accorded them by the Company. (ASTIS)

V-35998
Geological lectures by Dr. John Richardson,
1825-26 / Warkentin, J.
[Ottawa] : National Museum of Natural Sciences, [1979].
63p. : ill., facsims. (part. col.), map ; 28cm.
(Syllogeus, no. 22, 1979)
References: p.34-38
ACU

Notes made by Lieutenant George Back during eleven lectures on geology given by Sir John Richardson at Fort Franklin during the winter of 1825-1826 are presented. Warkentin uses these notes to investigate the state of geological theory as expressed by a leading geologist at the time when the subject was being founded as an empirical science and long-held fundamental concepts were being questioned. Warkentin identifies titles and editions of a small geological reference library known to have been available to the officers on the expedition. Richardson's published geological reports of 1823 and 1828 on areas traversed by the two Franklin land expeditions are used to illustrate the type of field studies undertaken at that time. (ASTIS)

V-37931
The Nakotcho Kutchin : a tenth aboriginal Kutchin
band? / Krech, S.
(Journal of anthropological research, v. 35, no. 1, Spring 1979, p. 109-121, maps)
References.
ACU

The examination of ethnohistoric data presents strong evidence for the disappearance of one North Athapaskan Kutchin regional band and it is suggested that epidemic diseases were responsible for this. The implications of acculturative changes for theories of social and band organization among Northern Athapaskans and other foragers are explored. (Au)

V-43613
British law and arctic men : the celebrated 1917
murder trials of Sinnisiak and Uluksuk, first Inuit tried under white man's law / Moyles, R.G.
Saskatoon : Western Producer Prairie Books, [1979].
93p. : photos. ; 23cm.
ISBN 0-88833 021-9
References.
ACU

This is the story of the first trials, under white man's law, of members of the Inuit race: Rex v. Sinnisiak and Uluksuk on charges of murder. ... The first trial in Edmonton ended in a "not guilty" verdict; following charges of jury-tampering and a change of venue, Sinnisiak and Uluksuk were eventually found guilty by a Calgary jury. ... the point of the trials was not only (nor even primarily) to bring Sinnisiak and Uluksuk to justice, but to impress upon the whole Inuit nation ... that the North was no longer theirs ... Canada was determined to establish control over the whole of its territory .... (Au)

V-44202
Vilhjalmur Stefansson and the Karluk disaster /
Hunt, W.R.
(Musk-ox, no. 25, 1979, p. 3-11, map, photos.)
References.
ACU

The careers of polar explorers should be periodically re-examined as a means of refreshing our memory of their achievements and also to review received interpretations of the facts in the light of new evidence. ... In his recently published book, William McKinlay, sole survivor of the Karluk (flagship of Stefansson's Canadian Arctic Expeditions of 1913-18) has charged Stefansson with responsibility for the Karluk disaster. Journalists reviewing the book tend to endorse uncritically McKinlay's unfair appraisal of Stefansson's role in the expedition. The ship was, in fact, doomed by both natural and human factors: a gale that forced her to drift helplessly westward into Siberian waters where she was eventually crushed by ice, and Captain Bob Bartlett's inexperience with Western Arctic navigation and his refusal to take advice. Stefansson was further hampered by efforts of scientists of the Geological Survey of Canada to subvert the expedition and discredit its commander. ... (Au)

V-45225
The origin of Canol's Mackenzie air fields / Finnie, R.S.
(Arctic, v. 33, no. 2, June 1980, p. 273-279)
ACU, NFSMO

This account of the Canol's Mackenzie air fields is based on personal diaries and reflects the author's participation from the spring of 1942 to the summer of 1945. (Au)

V-54402
Farming in the Territories / Hunt, L.A.C.O.
(North/Nord, v. 25, no. 1, Jan./Feb. 1978, p. 20-23, photos.)
ACU

This article outlines the long history of gardening and forage crop production in the N.W.T. Technical, economic, and administrative problems, notably N.W.T. government agricultural policy, are analyzed. (ASTIS)

V-54445
On snowshoes to the barren grounds / Silliman, L.
(North/Nord, v. 25, no. 1, Jan./Feb. 1978, p. 50-55, ill., map)
ACU

This article describes a 3000 km snowshoe trip made by Caspar Whitney in the early spring of 1895 to hunt the Barren Ground musk-ox. (ASTIS)

V-55328
By canoe up the Yellowknife River in 1932 / Wray, D.R.
(Musk-ox, no. 26, 1980, p. 21-50, maps, photos.)
(Musk-ox, no. 27, 1980, p. 36-59, maps, photos.)
References.
Published in 2 parts in consecutive issues.
ACU

... The present report deals with a traverse made by a geological survey party during the summer of 1932 which followed the course of the Yellowknife River on the route to Winter Lake used by Franklin in 1820. It also explores the country between Winter and Point Lakes and touches on a portion of the barren land north of Point Lake .... Observations recorded in the journal published here might indicate why Indians avoided travelling this route during the summer, choosing instead to seek their hunting grounds on the Barren Lands by way of the Snare River in their canoes, and only using the Yellowknife route when ice and snow had tamed its rapids and portages. ... (Au)

V-55379
Indigenization of Christianity and syncretism among the Indians and Inuit of the western Arctic / Gualtieri, A.R.
(Canadian ethnic studies, v. 12, no. 1, 1980, p. 47-57)
Footnotes.
ACU

My aim was to ascertain ... the extent (if any) to which missionaries deliberately tried to indigenize or adapt Christian beliefs, symbols and practices to Native cultural forms and to their understandings of man, nature and the sacred. ... The research disclosed that there has been negligible indigenization of Christianity. Nor was there evidence of significant syncretism. ... (Au)

V-57070
The consumption of caribou by whalemen at Herschel Island, Yukon Territory, 1890-1908 / Bockstoce, J.R.
(Arctic and alpine research, v. 12, no. 3, Aug. 1980, p. 381-384, map, tables)
References.
ACU

It has been maintained by several writers that American whalers substantially depleted the Porcupine caribou herd while wintering at Herschel Island, Yukon Territory. My research, based on the logbooks and journals of their vessels, has led me to conclude that the hunting pressure was not deleterious to the herd. (Au)

V-63339
Interethnic relations in the lower Mackenzie River region / Krech, S.
([Papers] - Symposium on Indian-Eskimo Relations : Studies in the Inter-Ethnic Relations of Small Societies, Houston, Texas, December 3, 1977 / edited by James G.E. Smith. Arctic anthropology, v. 16, no. 2, 1979, p. 102-122, figures)
References.
ACU

Interethnic relations in the lower Mackenzie River region from the aboriginal period through the twentieth century are examined. Focus is placed on interactions between Eastern Kutchin and Mackenzie Inuit, although Eurocanadians and Metis also are included in a dynamic ethnic group framework. ... (Au)

V-65293
Portaging on the Slave River (Fort Smith) / MacKinnon, C.S.
(Musk-ox, no. 27, 1980, p. 21-35, maps, photos.)
ACU

The opening of the north is largely the story of changes in transportation. These are best examined at the Slave River portages on the historic entry corridor for the vast north west. By using east side-channels, canoes and York boats could bypass or portage the worst rapids .... in the 1880s the new settlement of Fort Smith and Smith Landing (Fitzgerald) became the major break in the water route from Fort McMurray to the Arctic. A sixteen mile ox-cart road was developed gradually. The oil rush of 1919 prompted a switch to caterpillar tractors. In the 1930s the Ryan brothers were given a public freighting monopoly because the road was too distant to be maintained by the Alberta government. Protests led to the building of a rival road by Corser and Doyle. ... In the 1950s the federal government built an all-weather gravel highway. By this time Northern Transportation, a crown corporation, was handling most of the freighting. By the end of 1967 the railway to Great Slave Lake had diverted operations from Fort Smith to Hay River except for transfers of big barges. (Au)

V-65528
The ferocious enemies of the ancestors of the northern Dene in relation to the Mongols / Stewart, E.G.
(Anthropological journal of Canada, v. 19, no. 1, 1981, p. 18-23, figure)
ACU

The northern Dene of the Mackenzie Valley in northwestern Canada claimed that, in the far distant past, a terrible enemy drove their ancestors out of a verdant western country situated across the sea, on the other side of the earth. Their ancestors, according to their migration tradition, escaped with a man who knew the way to the northwest coast of America. Although their guide left them there, the Dene travelled on to the upper Yukon River region, and subsequently made their way farther inland. The traditions of the northern Dene identify the ferocious enemies of their ancestors as the Dhoen-on, and the leader of those enemies as Ta-tsan-ako, or The Crow Who Runs. ... The indications are that the Dhoen-on were people whom we regard as Mongols, and that their leader, Ta-tsan-ako, was none other than the mighty Genghis Khan. ... (Au)

V-65870
Herschel! The big town / Bruemmer, F.
(Beaver, 1980 [4] Winter, p. 26-35, ill., photos. (part. col.))
ACU

The author portrays the violent and sad history of Herschel Island, from its discovery by John Franklin in 1826, through its time as the whaling center of the Beaufort Sea when the population soared to 2,000 with the whalers wintering over, until the present day, when only one family inhabits the island. (ASTIS)

V-66079
Steps toward the analysis of Athapaskan social organization / Asch, M.I.
(Papers - Symposium on Reconsiderations of Aboriginal Social Organization in the North American Subarctic, Los Angeles, 14-18 November, 1978. Edited by Shepard Krech. Arctic anthropology, v. 17, no. 2, 1980, p. 46-51)
References.
ACU

This article is intended to provide a caution to those who would extrapolate aboriginal Athapaskan social organization from data available today. To that end, it indicates that there are certain theoretical problems with applying an ecologically based framework to the derivation of social organizational forms and suggests an alternative methodology based on relating forms of lineality and locality to rights to and organization of the means of production. It then suggests that such a methodology cannot be applied at present due to dearth of data, save for on-the-ground observation concerning lineality and descent among the Dene. Then, as a first step in rectifying this problem, the article lays out how these factors are organized in one Dene Community. (Au)

V-67164
Geographie historique des societes Autochtones du Mackenzie au contact des Occidentaux = History of the Mackenzie Eskimos / Flouquet, A.
(Bulletin - Association de Geographes Francais, no. 473-474, Nov./Dec. 1980, p. 385-392, maps)
English abstract.
Text in French.
ACU

The evolution of the cultural characteristics of an arctic hunters society, closely adapted to a restraining physical environment, during the contacts with the occident and its new values : a geographical fact as well as an historical one. (Au)

V-68985
de Sainville : forgotten Mackenzie mapper / Neufeld, P.L.
(North/Nord, v. 27, no. 4, Winter-Spring 1981, p. 54-56, figure)
ACU

For over six years from 1889 to 1894, Count V. Edouard de Sainville worked quietly in the Mackenzie Valley - exploring, surveying and mapping. With little fanfare, he returned to his native France, and the same silence that surrounded his life in Canada's Arctic seems to have surrounded his work to this day. Except for a handful of Northerners who met him then, a minor American explorer and a half-dozen government officials, North Americans were not informed about or aware of the truly significant work carried out by this French nobleman. ... (Au)

V-69256
Among the Chiglit Eskimos / Petitot, E. Hohn, E.O. [Translator].
[Edmonton : Boreal Insitute for Northern Studies], 1981.
xi, 202p. : ill., figures, maps ; 28cm.
(Occasional publication - Alberta. University Boreal Institute for Northern Studies, 10)
ISBN 0-919058-17-5
Translation of "Les grand Esquimaux" by E. Otto Hohn.
ACU

Petitot's work provides another and unique time perspective, and allows us detailed observation and early European perceptions of the Canadian North and its idigenous inhabitants. His contributions range from geography, geology, and ethnology. His linguistic works include a French-English vocabulary. (ASTIS)

V-71994
Great Bear : a journey remembered / Watt, F.B.
Yellowknife : Outcrop Ltd., [1980].
228p. : photos. ; 24cm.
ISBN 0-919315-00-3
ACU

Great Bear. The name had magic in the early 1930s. It sparked a great mining rush in Canada, sending men North in desperate search of riches. ... pitchblende, the glossy, black mineral that sold for hundreds of dollars an ounce - was a beacon in the bleakest days of the Depression. ... This is the story of one man who went to Great Bear. Ted Watt went in desperation and in hope, like the others. ... He takes us with him across the frozen, gale-swept face of Great Bear, to the edge of human endurance. Along the way, he saw men and events with a disciplined reporter's eye. Here are the colourful giants of those early days, mining men and bushpilots, native chiefs and lone prospectors. ... (Au)

V-76503
John Firth, legendary trader ; faithful "Bay" man / Zealley, E.
(North/Nord, v. 28, no. 2, Summer 1981, p. 22-25, ill., photos.)
References.
ACU

Several historical anecdotes are recounted of the man, John Firth, who served in the Mackenzie River District, Peel River, and Fort McPherson region as a clerk for th Hudson's Bay Company from 1871-1920. (ASTIS)

V-86371
Matonabbee, Chipewyan guide and northern trading chief / Yerbury, J.C.
(North/Nord, v. 29, no. 4, Winter 1982, p. 15-19, ill., maps)
ACU

Matonabbee, a Chipewyan Indian and Northern trading chief, was best known as Samuel Hearne's guide and companion during his famous trek across the tundra to the Coppermine River and Great Slave Lake between 1770 and 1772. Little known to historians was Matonabbee's prior engagement by Ferdinand Jacobs, Governor of Prince of Wales's Fort or Fort Churchill, during August of 1761 to act as an ambassador and mediator of peace between the Athapaskan and Cree Indians in the general Great Slave Lake and Lake Athabasca areas. Unpublished information on Matonabbee's embassy and life history along with a brief account of the historical background to Athapaskan and Cree intertribal hostilities between 1759 and 1764, provide a glimpse into the Protohistoric Period. This was a time during which Northern Athapaskan cultures were undergoing adaptations to new conditions imposed through European influences such as disease, trade goods, and fur trade rivalries, although the Europeans had not yet visited the Indians in their own territories. These cultures are now known as the Hare, Dogrib, Slave, Beaver, and Chipewyan. ... (Au)

V-93297
The Coppermine River : art and reality / St.-Onge, D.A.
(Canadian geographic, v.102, no. 4, Aug./Sept. 1982, p. 28-31, ill.)
ACU

... Every summer since 1979 I have travelled to the Coppermine Valley to study its geology. While examining its rocks, plants and wildlife, I also became fascinated by its legends and history. I read the diaries and records left by Hearne and Franklin, and I was struck particularly by the detailed drawings made by two of Franklin's companions, Robert Hood and George Back. The Franklin expedition of 1819-21 took place several decades before photography came into popular use, and the sketches were made as an official record of the terrain the explorers passed through. ... A comparison of these drawings with recent photographs of the same scenes reveals the remarkable degree of artistic licence taken by these early chroniclers. Intentionally or not Hood and Back did not draw the land as it really is. As a result, several generations of Europeans and North Americans were presented with romanticized images of Canada's vast northland in general and the Coppermine Valley in particular. ... (Au)

V-115860
The Mackenzie yesterday and beyond / Aquilina, A.P.
North Vancouver, B.C. : Hancock House, 1981.
204 p. : ill., maps ; 22 cm.
ISBN 0-88839-083-1
Bibliography.
ACU

The search for the Northwest Passage, fur, whales, gold, and now oil tempted the intrepid to the north. They brought with them change - for the environment, for the people, for the culture - change so profound that it has not yet been fully understood. The recorded history of the area is brief, dramatic, intriguing. The struggles of the past, the dilemmas of the present, and the promise of the future are detailed in this fascinating look at Canada's north. (Au)

V-131601
Early science and discovery in the western Arctic / Pluth, D.W.
(APOA Review, v. 6, no. 2, Fall 1983, p. 10-15, ill., map)
ACU

This article describes how science has played a major role in the exploration of the North American Arctic, beginning with the meteorological observations made by John Ross. The explorations and mapping accomplished by Bering, Cook, Drake, Hearne, Mackenzie, Ross, Parry, Franklin, Richardson, Dease, Simpson and Rae are outlined. (ASTIS)

See Also : A-98655, P-105490, Q-42242, Q-91464, R-136271, R-140767, S-137243, S-139513, T-66087, T-89575, T-91626, T-105830, T-110876, T-134813, U-92045, U-92053, U-103110, U-124036, W-54240, W-138177, Y-50938

W - DESCRIPTION AND TRAVEL

W-19011
The Dempster Highway, road to the Arctic / Bingham, J.
(Arctic in colour, v. 6, no. 4, 1978, p. 12-15, col. photos.)
ACU

Describes the Dempster Highway, its history and importance as the first all-weather highway in North America to cross the Arctic Circle. (ASTIS)

W-19020
Nahanni, somewhere over there and beyond / Krasemann, S.J.
(Arctic in colour, v. 6, no. 4, 1978, p. 25-29, col. photos.)
ACU

An account of a 12-day trip by the author and a party of eight people through the South Nahanni River Valley. (ASTIS)

W-34681
Coppermine / Raffan, J.
(Nature Canada, v. 8, no. 4, Oct./Dec. 1979, p. 12-19, col. photos.)
ACU

This article describes the Coppermine River from its source at Lac de Gras, 300 km northeast of Yellowknife, to the Arctic Ocean. Geographic and natural features along the route help to explain the popularity of this area for modern wilderness travellers. Conflicting pressures to develop these and other resources of the area may have to be answered soon. (ASTIS)

W-44610
Parks Canada hopes to preserve Tuktoyaktuk area.
(Inuktitut, 1979 [1] Spring, p. 48-51, photos.)
Text in English and Inuktitut.
ACU

Parks Canada has proposed that a 12.8 square kilometer area of the Tuktoyaktuk Peninsula be set aside as a "National area of Canadian significance." The presence there of hundreds of pingos is thought to be the largest concentration in the world, with Ibyuk Hill as the largest in Canada. The area also supports a very rich mammal and bird population. (ASTIS)

W-46230
A canoeist's exploration of Nahanni Park / Harding, L.
(Canadian geographic, v.100, no. 3, June/July 1980, p. 50-57, col. photos., map)
ACU

The author describes features encountered on a trip through the length of the South Nahanni River from Rabbitkettle Lake at the head of the Park. Historical anecdotes and references to earlier travels by Faille and Patterson supplement this modern account of travel in the area. (ASTIS)

W-51780
Nahanni trailhead : a year in the northern
wilderness / Moore, J.R.
[Ottawa] : Deneau & Greenberg, [1980].
228p. : ill., photos. ; 24cm.
ISBN 0-88879-034-1
OONL

The remote and inaccessible wilderness has always lured adventurers into its uncharted tracts. This is the story of one such adventure. It takes place on the shores of the fabled South Nahanni River in the Northwest Territories, well beyond the sixtieth parallel. It is the story of challenge, courage and romance, as a young couple face hardship, isolation and the biting cold of Canada's snowy wastes in their quest for the beauty and simplicity of northern life. (Au)

W-54240
The Dismal Lakes / Buetow, D.
(Beaver, 1978 [2] Summer, p. 36-41, map, col.
photos.)
ACU

An account of the author's canoe trip through the Dismal Lakes with references to their place in the travels of early explorers of the Canadian North. (ASTIS)

W-79774
Nahanni : Canada's wilderness park / Chadwick,
D.H.
(National geographic, v.160, no. 3, Sept. 1981,
p. 396-420, ill., col. photos.)
ACU

In 1979 UNESCO made Nahanni the first natural area on the globe to be officially dedicated as a world heritage site. Part of the proclamation reads, "Nahanni National Park ... contains outstanding examples of the major stages of the earth's evolutionary history and of significant on-going geological processes." These pages are full of the splendour offered by this wilderness area exploring both the richness of its geography and history. (ASTIS)

W-106267
Banks Island : gem of the western Arctic / Harry,
D.G.
(Canadian geographic, v.102, no. 5, Oct./Nov.
1982, p. 54-61, col. ill.)
ACU

This article describes various aspects of Banks Island, such as white fox trapping, the climate, the vegetation, and the wildlife. (ASTIS)

W-118923
A winter trip to the South Nahanni / Benoit, L.
Heebink, P.
(Canadian alpine journal, v. 66, 1983, p. 49)
ACU

A snowshoe and ski trip to the South Nahanni was accomplished by two groups leaving Tungsten in opposite directions. Routes included travel through the Ragged Range with a decent of Britnell Creek, the crossing of Glacier Lake and descent of the S. Nahanni River, Pass Creek to the Hole-in-the-Wall Creek and to Rabbitkettle Hotsprings. (ASTIS)

W-120570
Rafting the Yukon's remote Firth / Harrington, R.
(Canadian geographic, v.103, no. 4, Aug./Sept.
1983, p. 18-25, ill.)
ACU

This article presents a description of rafting on the Yukon's Firth River. (ASTIS)

W-138177
Getting along in the Mackenzie Delta /
Petro-Canada.
Calgary, Alta. : Petro-Canada, 1979.
43 p. : col. ill. ; 22 cm.
Cover title.
References.
ACU

This booklet is part of a series published by Petro-Canada to inform our employees about the environment and people of regions where resource development is being pursued. ... This booklet presents a brief sketch of the land plant and animal life, and people of the Delta region. It focuses on the Mackenzie Delta proper, with additional information on surrounding areas, including the Beaufort Sea coast from the Yukon/Alaska border to Cape Bathurst. (Au)

See Also : C-37206, C-37214, L-88943, Q-42242

X - GENERAL

X-30317
The coast and shelf of the Beaufort Sea,
proceedings / Symposium on Beaufort Sea Coast
and Shelf Research, San Francisco, January 7-9,
1974. Reed, J.C. [Editor]. Sater, J.E.
[Editor]. Gunn, W.W. [Editor]. Arctic
Institute of North America.
[Arlington, Va. : Arctic Institute of North
America], 1974 [c1975].
750p. : ill., maps ; 26cm.
(APOA project no. 63 : Arctic Institute of
North America Beaufort Sea Symposium. Report)
References.
ACU, NFSMO

... the Symposium would: (1) Outline the present state of knowledge. (2) Define still-existing problems. (3) Interrelate the works of various disciplines in a synthesis of the region's environment and processes. ... Presentations at the Symposium were grouped into three broad disciplinary categories: air-ice-water, geology, and biology. One day was given over to each category. The sequence of presentations at the Symposium has been adhered to in compiling this volume. Two hours of each day's session were devoted to commentaries on the theme papers, general discussion, and questions from the floor. While a verbatim transcript of these exchanges is lacking, written questions and statements were solicited and are included here, together with the response they elicited. ... (Au)

X-33693
Automatic time-lapse camera systems / Banner, J.A.
van Everdingen, R.O.
Ottawa : National Hydrology Research Institute,
1979.
v, 20p. : ill., figures, photos. ; 28cm.
(NHRI paper, no. 4)
(Technical bulletin - Canada. Inland Waters
Directorate, no. 112)
ISBN 0-662-10691-1
References.
ACU

This report provides construction and operation details for the automatic time-lapse camera system that was developed and used to monitor natural phenomena in northern Canada. Modified Eastman Kodak K89A 16-mm strike-recording motion picture cameras were used in this system. Some of the results obtained with the system are presented and discussed. Suggestions for the adaptation of other cameras for time-lapse photography are also given. (Au)

X-41181
Coastal zone : an informal newsletter on the resources of the Pacific and western Arctic coasts of Canada.
v.1, no.1 (Mar.?, 1979)- .
[Vancouver : Lands Directorate, Pacific Region, Environment Canada, 1979-].
28cm.
Quarterly.
ACU

The purpose of this publication is to publicize research projects from any discipline focussing on the British Columbian and western Arctic waters and coasts. Descriptions of projects and contact information is provided. Other regular departments include notices of relevant courses, calls for papers, publications, and a calendar of events. (ASTIS)

Y - MISCELLANEOUS

Y-18953
Fort Smith news.
Fort Smith, N.W.T. : Canarctic Graphics, 1978- .
ill. : 43 cm.
Weekly.
Description based on no. 31 (Mar. 1979).
ACU

A weekly newspaper from Fort Smith providing local news, sports and social events. (ASTIS)

Y-19941
Slave River journal.
[Fort Smith, N.W.T. : Don Jaque, 1978-].
ill. ; 43cm.
Weekly.
Description based on Mar. 8, 1979 issue.
ACU

A regional weekly newspaper serving the area between Lake Athabasca and Great Slave Lake, N.W.T. (ASTIS)

Y-50932
The mad trapper / Wiebe, R.
[Toronto] : McClelland and Stewart, [1980].
189p. ; 22cm.
ISBN 0-7710-8976-7
ACU

This historical novel describes the mystery surrounding the arrival of Albert Johnson in Fort McPherson, his subsequent wounding of RCMP Constable King at Rat River, and the epic fifty-day pursuit through the Richardson Mountains in winter led by Corporal Millen, assisted by Wop May, which ended in Johnson's and Millen's deaths at their final confrontation, Feb. 18, 1932. (ASTIS)

Y-135305
Don Cardinal, bush painter of the north / Cooke, L.
(The Beaver, 1983 [1] Spring, p. 54-57, col. ill.)
ACU

This article describes the life-style of the painter, Don Cardinal and the subject matter of his paintings - the buildings and the people of small bush communities, wolves, and the abandoned cabins of prospectors. (ASTIS)

See Also : V-93297

Aboriginal rights Q-116823, R-135593

Acid rain - Environmental aspects H-140651

Adaptation (Biology) H-140295, J-78197

Adult education R-91405, R-93521, T-93513

Aerial photography C-15768, F-131539, G-69647, G-92169, G-107247, G-107255, G-107280, G-108286, I-118478, L-48666

Aerial surveys A-107999, A-108006, A-108014, B-3735, B-85332, F-88323, F-88390, G-108367, G-131962, I-43915, I-43923, I-44008, I-47210, I-58769, I-68640, I-68713, I-69906, I-73091, I-89478, I-90018, I-90026, I-90034, I-92177, I-93815, I-106992, I-107000, I-107018, I-107026, I-107042, I-107751, I-107778, I-107794, I-107816, I-107840, I-107859, I-107867, I-108138, I-113476, I-115576, I-117250, I-118109, I-118214, I-118478, I-124745, I-133779, I-133795, I-135623, I-135631, I-135640, J-58882

Agriculture C-14532, C-14540, N-124001, V-54402

Aids to navigation D-108448, L-74063

Air - Arsenic content J-7129, P-16080, P-25828

Air pollution J-7129, P-25828

Air quality J-7129, Q-25798, Q-26956

Air traffic control L-13714

Air transportation L-13714, L-112852, Q-93254, Q-106976

Aircraft disturbance Q-26484, Q-40541, Q-89010, S-42250

Aircraft disturbance - Environmental aspects I-62022

Airports L-13714, L-112852, M-114170, V-32816, V-45225

Aklavik Fur Garment Co-op R-11509

Alaska Highway Gas Pipeline Project Q-23388

Alaska Highway Gas Pipeline Project - Environmental aspects H-96164

Alaska Native Claims Settlement Act, 1971 T-72079

Albedo Q-15547

Alcohol abuse R-5940

Algae H-11622, H-43621, H-51250, H-51322, H-51357, H-55239, H-85200, P-19615, P-19623

Algae, Fossil B-16390

All-terrain vehicles L-21270, L-24716

Alpine tundra ecology H-38911, H-51829, H-70378

Ammonoidea B-75485

Amphibians I-139742

Anchorage (Structural engineering) Q-83933

Andalusite B-122890

Animal anatomy I-107840, I-118478

Animal behaviour I-310, I-2933, I-2941, I-2976, I-20265, I-20400, I-30325, I-30333, I-31909, I-38814, I-62138, I-67016, I-68721, I-69973, I-76554, I-87831, I-90212, I-91693, I-93165, I-96237, I-106410, I-107042, I-107786, I-107832, I-107840, I-109894, I-115576, I-124575, I-127043, I-135623, I-135631, I-135640, L-120596, N-42480, Q-2950, Q-2968, Q-23396, Q-26484, Q-31186, Q-40541, Q-89010, Q-107921, Q-116785, Q-118931

Animal distribution B-38873, I-2933, I-2941, I-11908, I-20400, I-29963, I-29971, I-30325, I-30333, I-38504, I-43915, I-43923, I-44006, I-44687, I-47210, I-50822, I-58769, I-59838, I-62022, I-68713, I-69906, I-89478, I-90018, I-90026, I-91537, I-92177, I-96210, I-96237, I-106631, I-106992, I-107000, I-107018, I-107026, I-107670, I-107689, I-107751, I-107778, I-107794, I-107816, I-107824, I-107832, I-107840, I-107859, I-107867, I-108073, I-108138, I-108570, I-112100, I-113522, I-115576, I-117277, I-123242, I-127043, I-133779, I-133787, I-133795, I-135623, I-135631, I-135640, I-137987, I-138169, L-19593, Q-2950, Q-2968, Q-43990, Q-107050, Q-116769, Q-116777, Q-118125, S-42250, S-52787, U-124036

Animal ecology F-88323, F-88382, I-32212, I-38504, I-62022, I-62138, I-69906, I-112178, I-120499, Q-26956

Animal food and nutrition I-310, I-4189, I-20265, I-20400, I-87122, I-108219, I-127043

Animal growth I-138169

Animal handling and immobilization I-135631, I-135640

Animal migration I-2933, I-2941, I-11886, I-11894, I-22624, I-29963, I-29971, I-43915, I-43923, I-44008, I-47210, I-50822, I-59838, I-62200, I-68411, I-68640, I-73091, I-90026, I-90212, I-92177, I-106992, I-107042, I-107670, I-107751, I-107778, I-107840, I-113522, I-115169, I-117250, I-118214, I-133779, I-133787, I-135631, I-137987, L-19593, L-36242, Q-2950, Q-43990, Q-107050, Q-118125

Animal mortality I-32212, I-43915, I-43923, I-44008, I-47210, I-62138, I-92177, I-107751, I-133760, I-135631, V-57070

Animal physiology I-46310, I-52450, I-54968, I-62537, I-87122, I-87831, I-124745, Q-11592, Q-84263

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